DINOSAURS!

• DISCOVER THE GIANTS OF THE PREHISTORIC WORLD •

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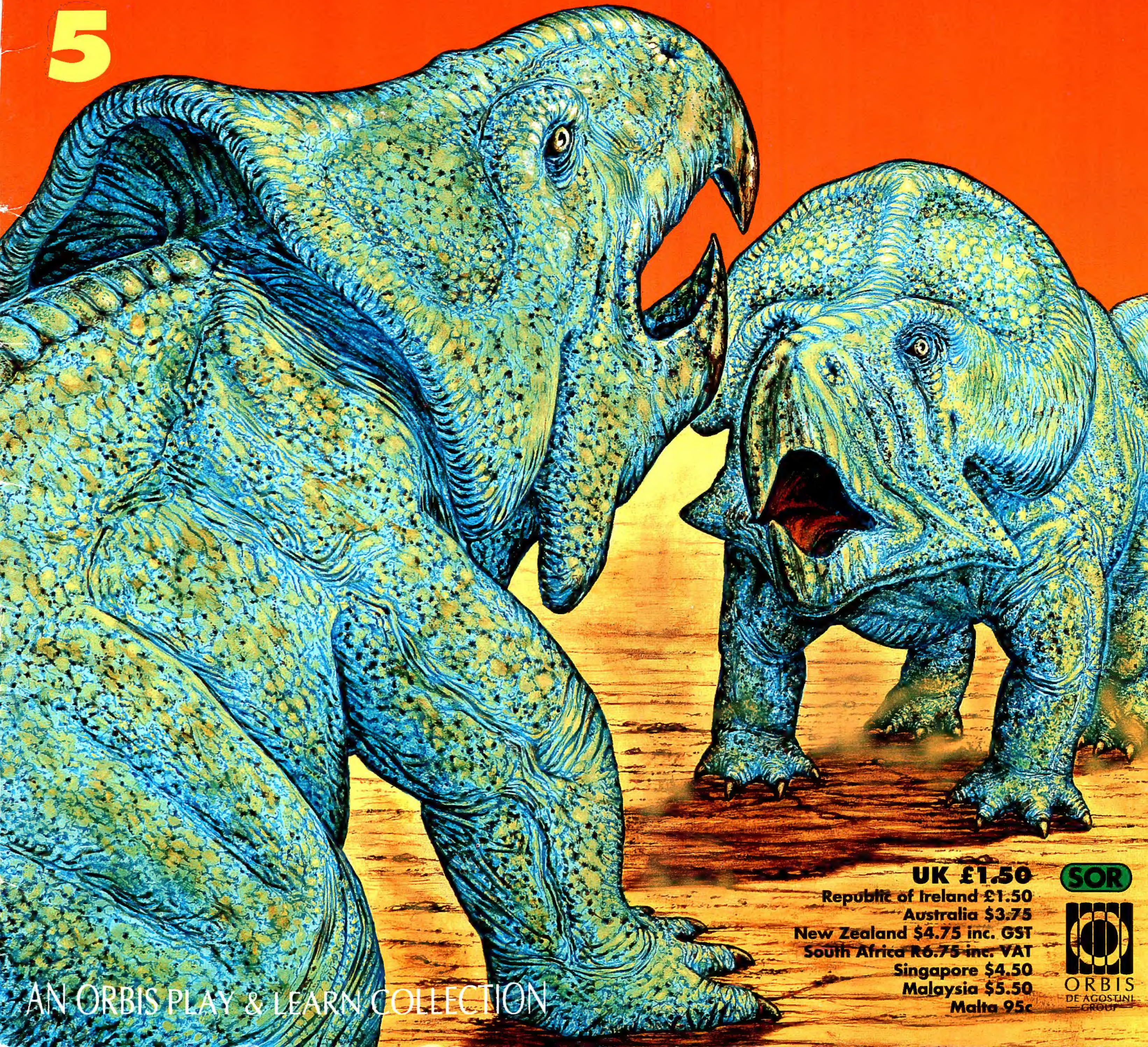

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DINOSAURS!

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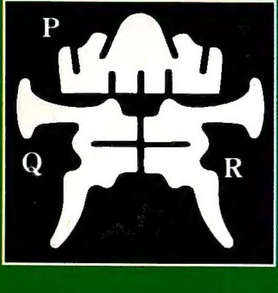

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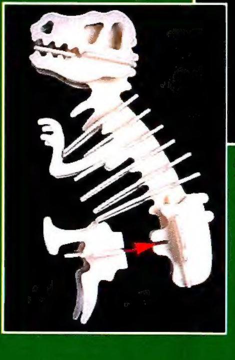
HOW TO ASSEMBLE YOUR MODEL

Keeping Q and R pointing the same way, clip Q and R into the slanted slots next to the hump on P. Together, parts P, Q and R form the pelvis. With the trumpet-shaped parts pointing downwards, clip the pelvis to the two slots under the hips.

▼ How to attach the pelvis to the hips



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PROTOCERATOPS

When scientists found *Protoceratops'* nests in the Mongolian desert, it was proof that dinosaurs laid eggs and that some lived in family groups or herds.

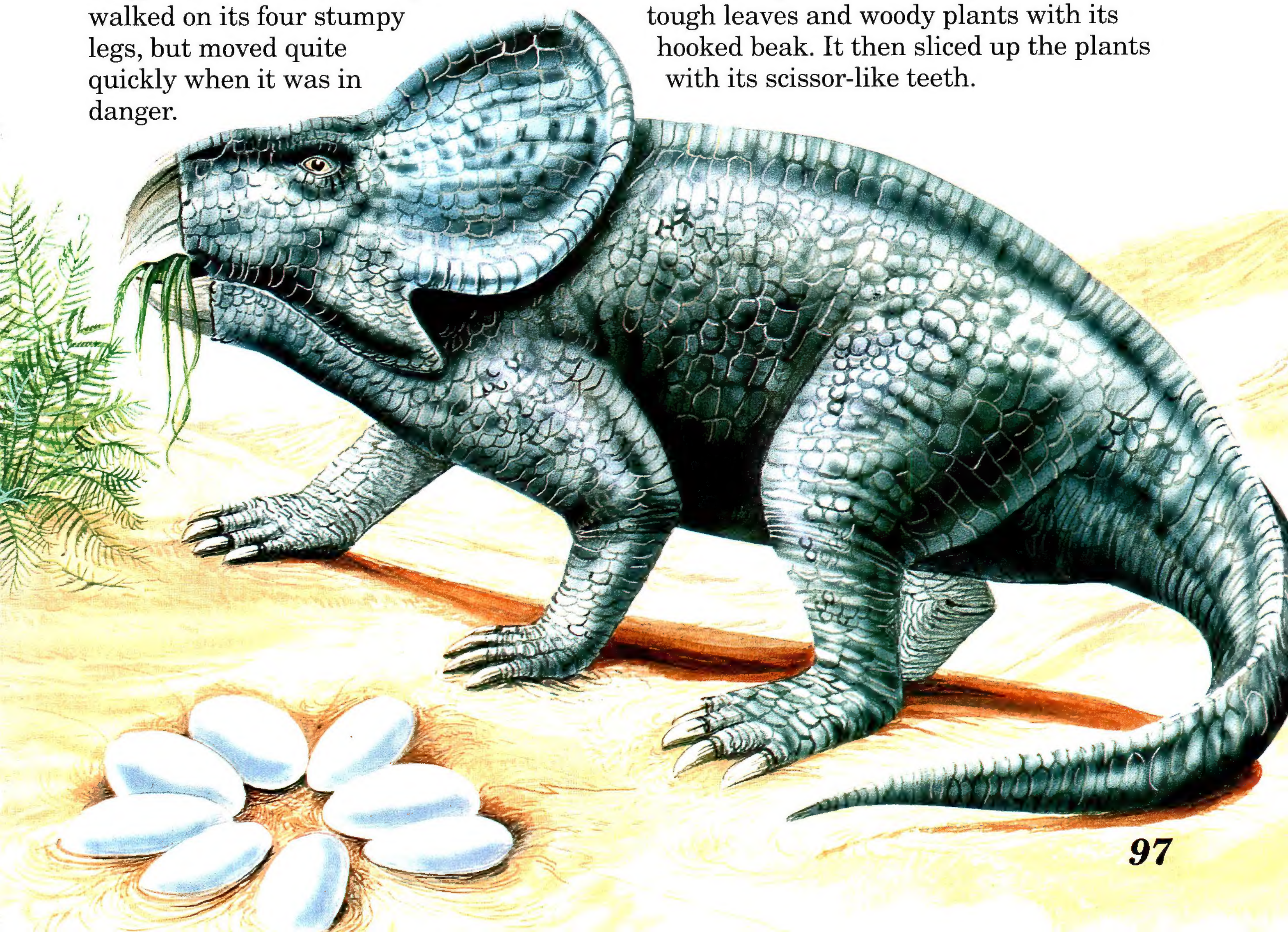
Protoceratops was a small dinosaur, only about the size of a large dog. Although it looked fierce, with its heavy head, sharp, beak-like mouth and large bony frill around its neck, *Protoceratops* ate only plants. It had a heavy, squat body, with a long, thick tail. *Protoceratops* walked on its four stumpy legs, but moved quite quickly when it was in danger.

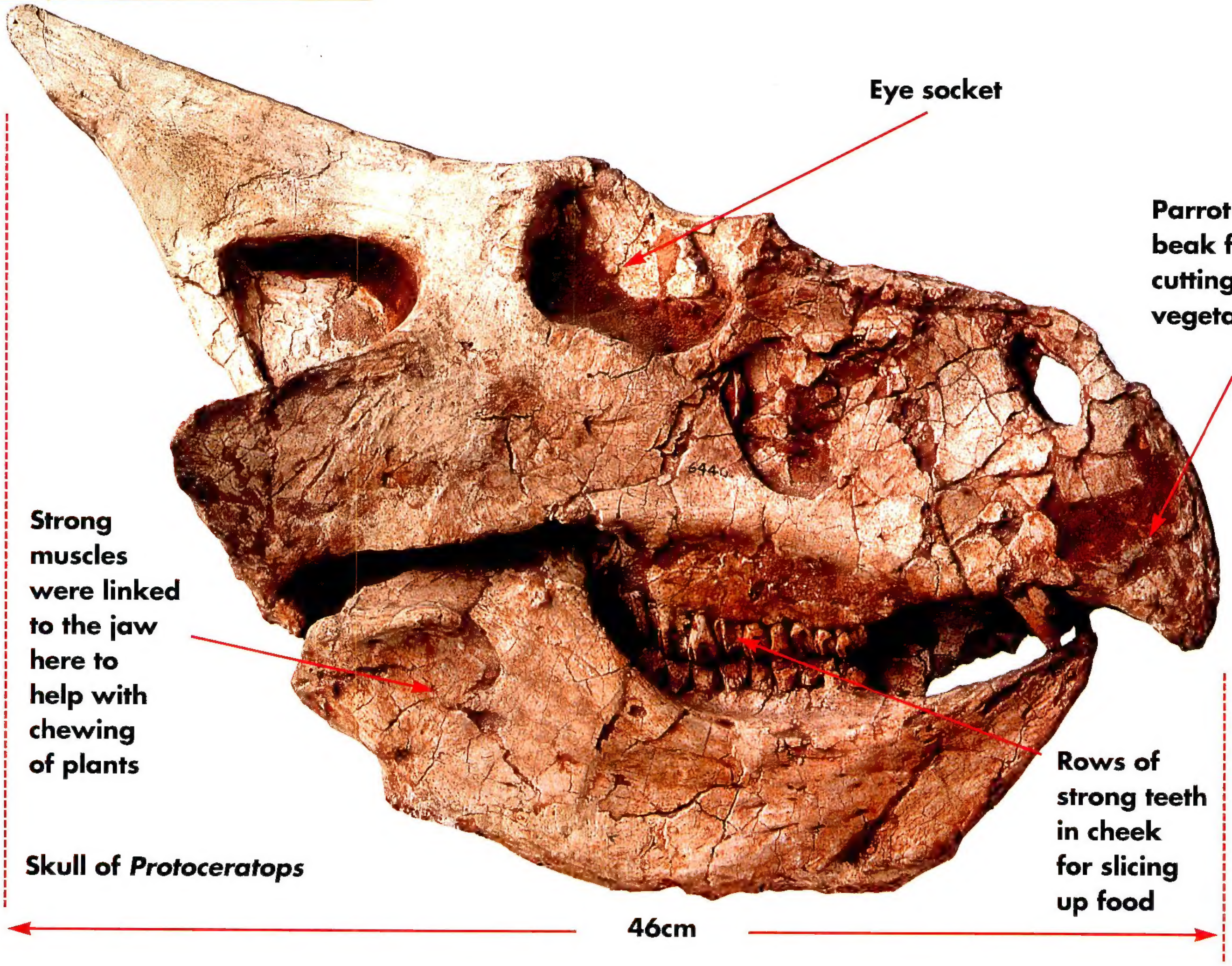
BONY FRILL

There was a bony frill or shield around its neck, which grew bigger and broader as the dinosaur grew older. The frill protected the neck of *Protoceratops* from attack by meat-eating dinosaurs. Males also used their frills for display to attract females at the beginning of the mating season. Their frills made them look big and powerful, which warded off rival males.

POWERFUL JAW MUSCLES

Protoceratops had large, strong muscles around its jaws. These helped it bite off tough leaves and woody plants with its hooked beak. It then sliced up the plants with its scissor-like teeth.




Eye socket
Parrot-like beak for cutting vegetation
Strong muscles were linked to the jaw here to help with chewing of plants
Rows of strong teeth in cheek for slicing up food
46cm

Skull of *Protoceratops*

Some herbivore dinosaurs, such as *Protoceratops,* had sharp, pointed beaks like the parrot, shown left. These were used to cut through tough plants, which they then ate.

MONSTER FACTS

- **NAME:** *Protoceratops* (pro-toe-ser-a-tops) means 'first horned face'
- **SIZE:** about 1.8m long and 1m high
- **FOOD:** tough leaves and plants
- **LIVED:** about 110 – 66 million years ago in Mongolia in the Late Cretaceous Period

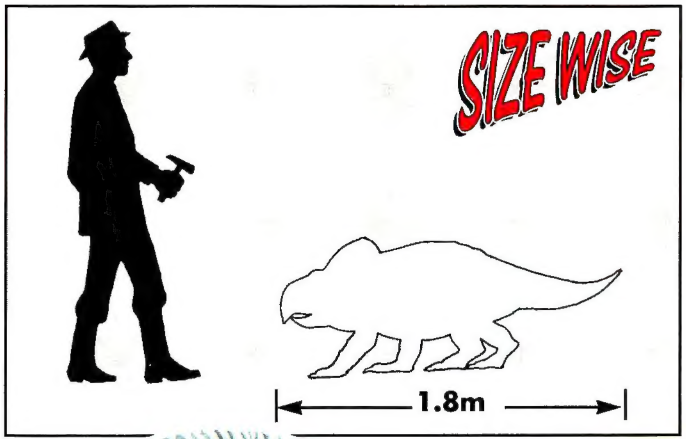
EGGS IN THE DESERT

In 1922, a scientific expedition to the Gobi Desert, in Mongolia, unearthed nests of *Protoceratops'* eggs. These contained the first dinosaur eggs ever found. The discovery proved for the first time that dinosaurs laid eggs. Until then, no one knew if they laid eggs, like crocodiles or lizards, or gave birth to live young, like mammals. As many as 30 eggs were found in one nest. It is unlikely that one female laid so many eggs at once, so scientists think that two or more *Protoceratops* females may have shared the same nest.

IT'S A FACT

EGG-STEALERS

Protoceratops had to guard its nests against predators such as *Oviraptor,* whose name means 'egg-stealer'. Dinosaur eggs would have made an ideal meal for it. A fossilized *Oviraptor* skeleton, with its skull smashed in, was found above a nest of *Protoceratops'* eggs. Perhaps an angry parent had killed it when it tried to rob the nest.



FAMILY GROUPS

Several nests have been found close together. This seems to show that *Protoceratops* lived in family groups or small herds. Once the eggs had hatched safely, the babies which broke out of the shells were about 30cm long. The adult females brought food to the nests until their young had grown big enough to find it for themselves.

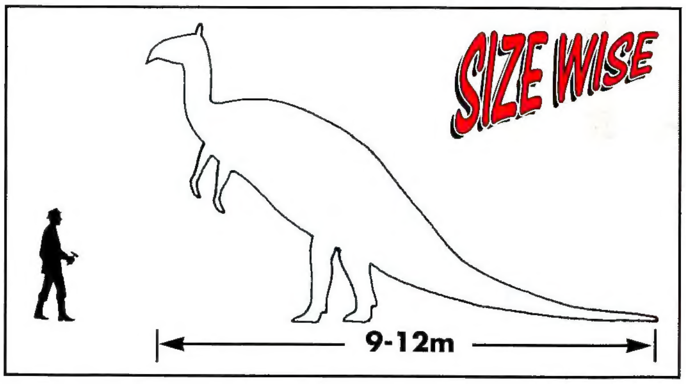
DIFFERENT SIZES

Skeletons of *Protoceratops* found in Mongolia range from tiny ones still inside the eggs to small babies and fully grown adults. Some of the adults vary slightly. They have differently shaped frills, for example. Scientists think that this may be because the males were bigger with larger heads, frills and crests than the females.

SAUROLOPHUS

Despite rows of teeth and its crested head, *Saurolophus* was unable to defend itself against attack.

Saurolophus is one of the duckbilled dinosaurs, known as hadrosaurs. It used its toothless beak to nip off twigs, tough leaves and pine needles, which it ground up between its many rows of teeth.

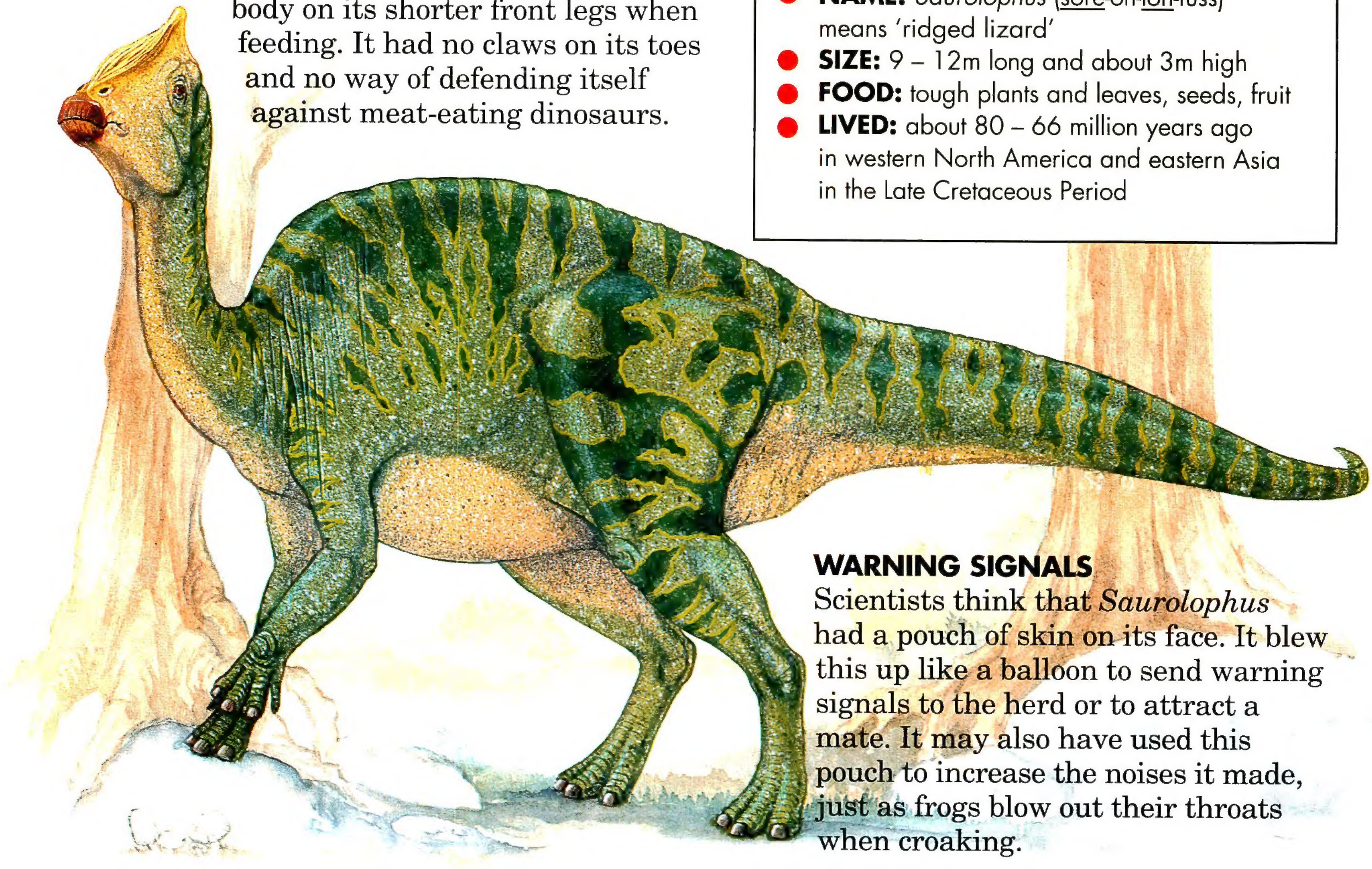


DEFENCELESS DINOSAUR

About as long as a bus, *Saurolophus* walked on its back legs, but supported its body on its shorter front legs when feeding. It had no claws on its toes and no way of defending itself against meat-eating dinosaurs.

MONSTER FACTS

- **NAME:** *Saurolophus* (sore-oh-loh-fuss) means 'ridged lizard'
- **SIZE:** 9 – 12m long and about 3m high
- **FOOD:** tough plants and leaves, seeds, fruit
- **LIVED:** about 80 – 66 million years ago in western North America and eastern Asia in the Late Cretaceous Period



WARNING SIGNALS

Scientists think that *Saurolophus* had a pouch of skin on its face. It blew this up like a balloon to send warning signals to the herd or to attract a mate. It may also have used this pouch to increase the noises it made, just as frogs blow out their throats when croaking.

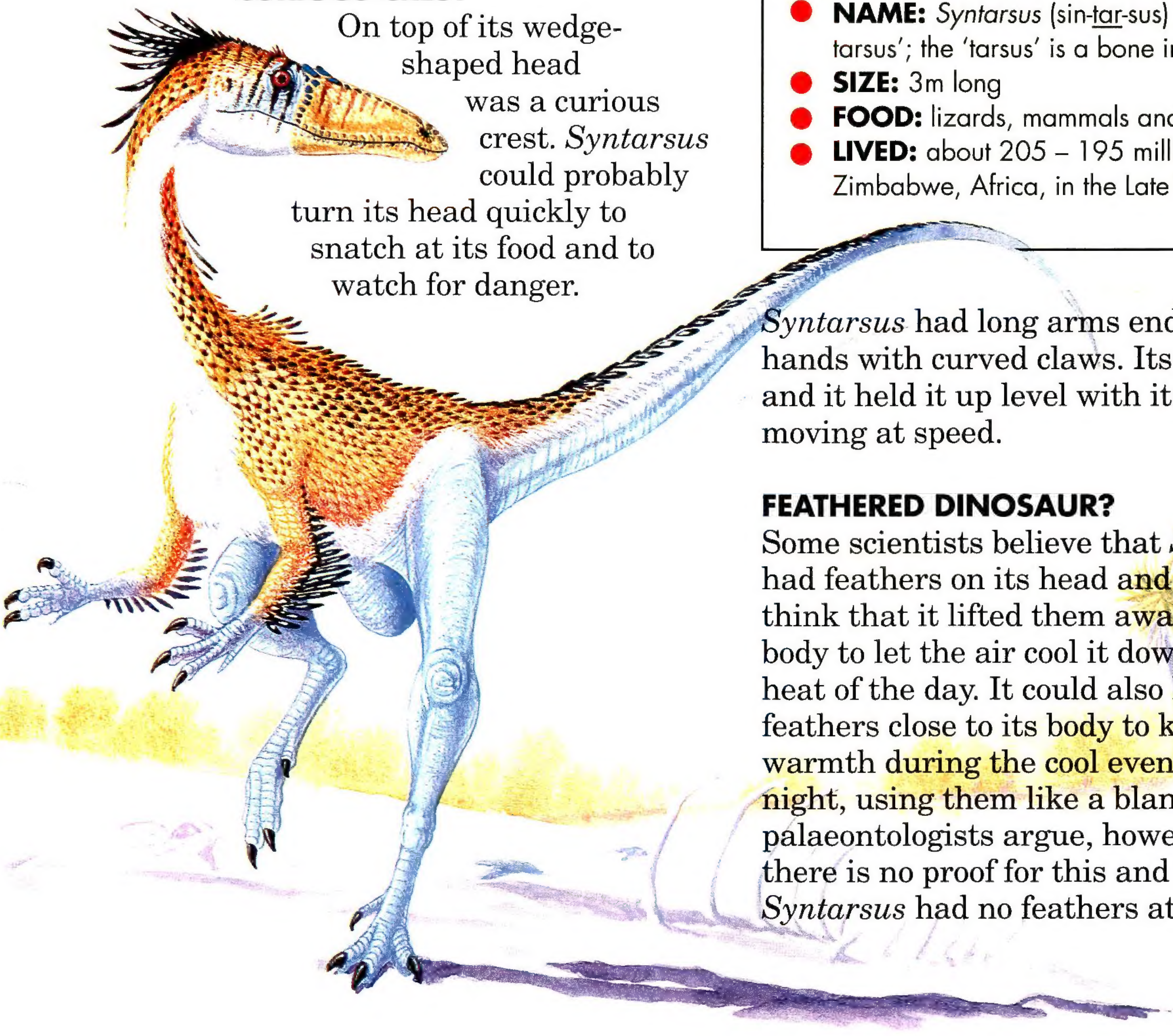
SYNTARSUS

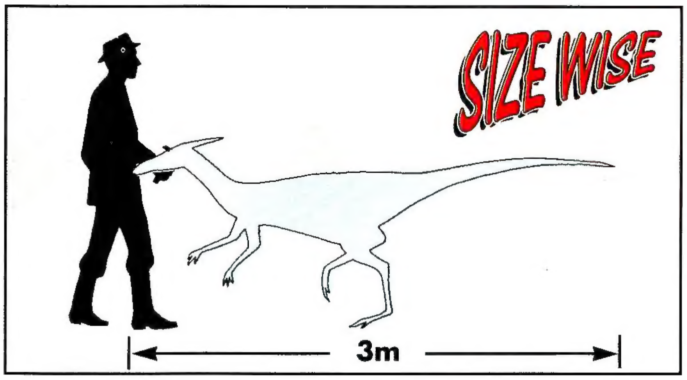
***Syntarsus* was a speedy, small dinosaur. Some scientists think it might have been covered in feathers.**

Syntarsus was about the length of a small car, and had a long neck and tail. It fed on lizards, small mammals and flying insects. *Syntarsus* ran quickly on its long back legs, like a huge bird, to chase its prey. It also needed to dart about to escape from large meat-eating dinosaurs.

CURIOUS CREST

On top of its wedge-shaped head was a curious crest. *Syntarsus* could probably turn its head quickly to snatch at its food and to watch for danger.





MONSTER FACTS

- **NAME:** *Syntarsus* (sin-tar-sus) means 'fused tarsus'; the 'tarsus' is a bone in the ankle
- **SIZE:** 3m long
- **FOOD:** lizards, mammals and flying insects
- **LIVED:** about 205 – 195 million years ago in Zimbabwe, Africa, in the Late Triassic Period

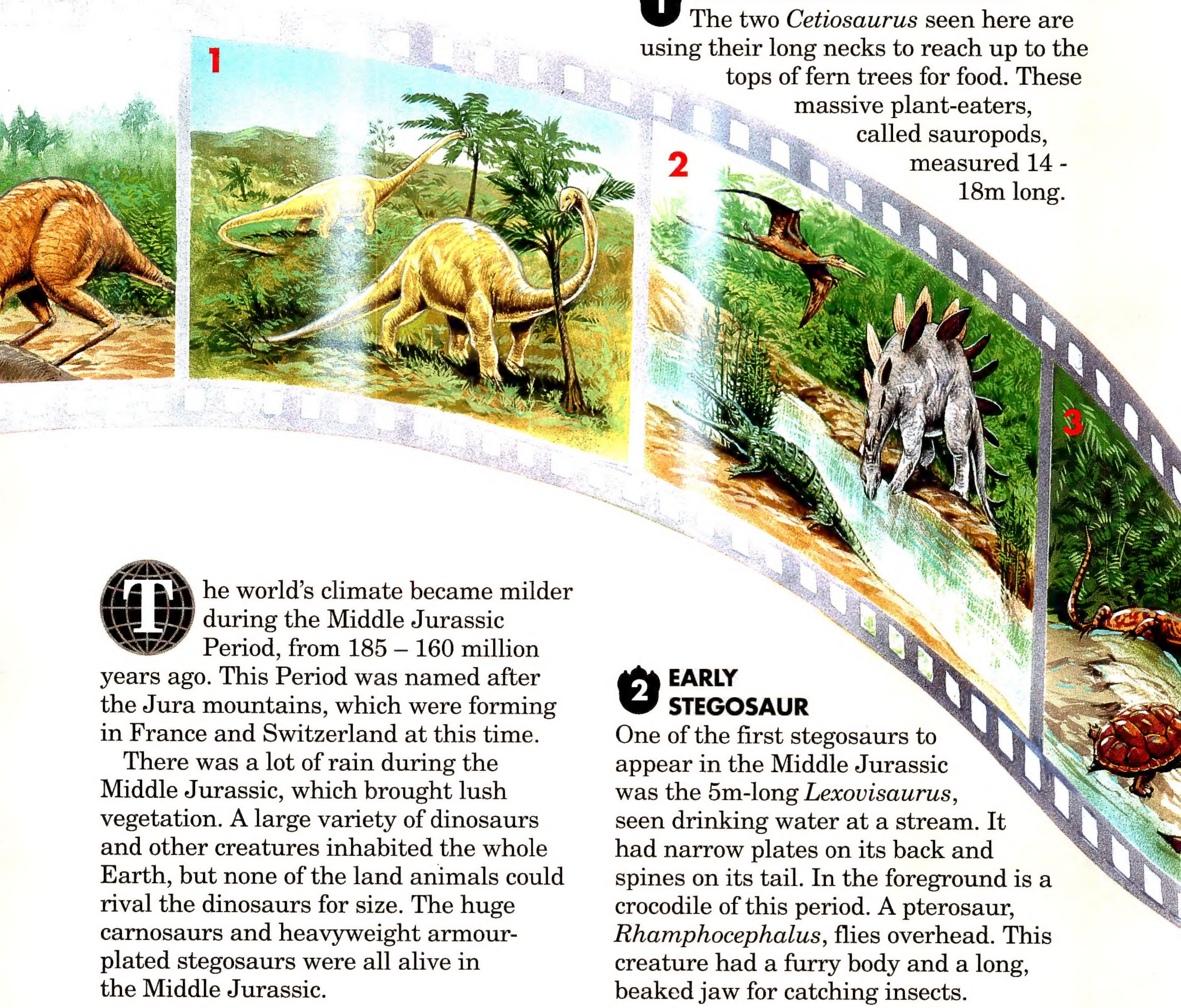
Syntarsus had long arms ending in large hands with curved claws. Its tail was long and it held it up level with its body when moving at speed.

FEATHERED DINOSAUR?

Some scientists believe that *Syntarsus* had feathers on its head and body. They think that it lifted them away from its body to let the air cool it down during the heat of the day. It could also lower the feathers close to its body to keep in the warmth during the cool evenings and night, using them like a blanket. Other palaeontologists argue, however, that there is no proof for this and that *Syntarsus* had no feathers at all.

A wealth of dinosaurs

Gigantic, plant-eating sauropods and fierce meat-eaters – these were among the many types of dinosaurs roaming the Middle Jurassic landscape.



1 LONG-NECKED HERBIVORES

The two *Cetiosaurus* seen here are using their long necks to reach up to the tops of fern trees for food. These massive plant-eaters, called sauropods, measured 14 - 18m long.

The world's climate became milder during the Middle Jurassic Period, from 185 – 160 million years ago. This Period was named after the Jura mountains, which were forming in France and Switzerland at this time.

There was a lot of rain during the Middle Jurassic, which brought lush vegetation. A large variety of dinosaurs and other creatures inhabited the whole Earth, but none of the land animals could rival the dinosaurs for size. The huge carnosaurs and heavyweight armour-plated stegosaurs were all alive in the Middle Jurassic.

2 EARLY STEGOSAUR

One of the first stegosaurs to appear in the Middle Jurassic was the 5m-long *Lexovisaurus*, seen drinking water at a stream. It had narrow plates on its back and spines on its tail. In the foreground is a crocodile of this period. A pterosaur, *Rhamphocephalus*, flies overhead. This creature had a furry body and a long, beaked jaw for catching insects.

4 FEARED PREDATOR

On wings 2m across, a pterosaur, *Rhamphocephalus*, flies above two large dinosaurs. One is a *Cetiosaurus*. The other, to the right, is a *Megalosaurus*. This was perhaps the most feared predator of the Middle Jurassic.

5 OCEAN ODDITY

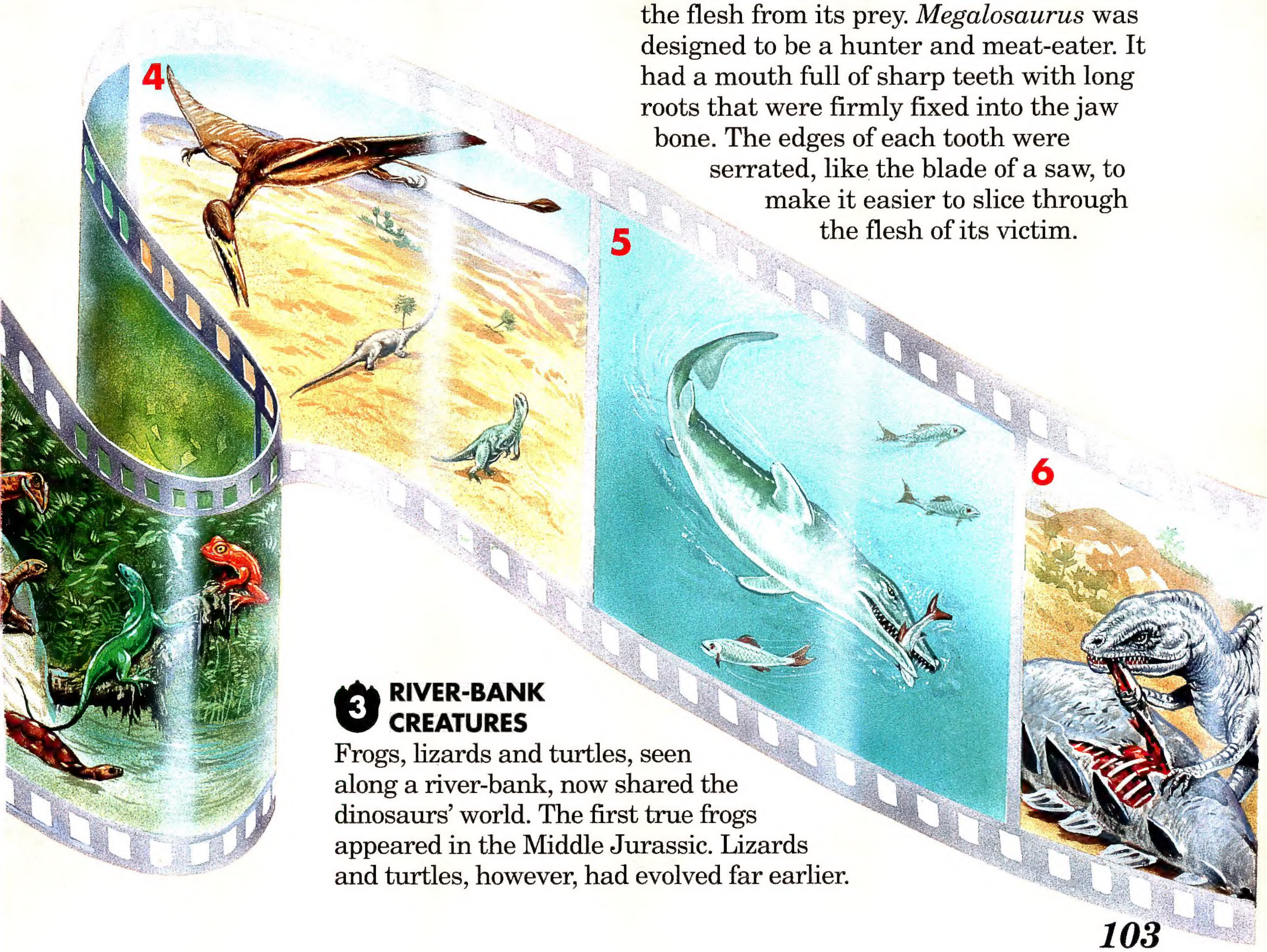
Metriorhynchus, seen with a fish it has just caught, was a strange, sea-going ancestor of crocodiles. Measuring 2m long – the length of today's common seal – *Metriorhynchus* had a face like a crocodile, but grew a fish-like tail.

Is it true that crocodiles have lived on Earth for 200 million years?

Yes, it is true that crocodiles have inhabited this planet for about 200 million years. The ancestors of the crocodiles first appeared in the Jurassic Period. By the Cretaceous Period, they had become very similar to the crocodiles that live on Earth today.

6 HUGE HUNTER

In this scene, a *Megalosaurus* tears the flesh from its prey. *Megalosaurus* was designed to be a hunter and meat-eater. It had a mouth full of sharp teeth with long roots that were firmly fixed into the jaw bone. The edges of each tooth were serrated, like the blade of a saw, to make it easier to slice through the flesh of its victim.



3 RIVER-BANK CREATURES

Frogs, lizards and turtles, seen along a river-bank, now shared the dinosaurs' world. The first true frogs appeared in the Middle Jurassic. Lizards and turtles, however, had evolved far earlier.

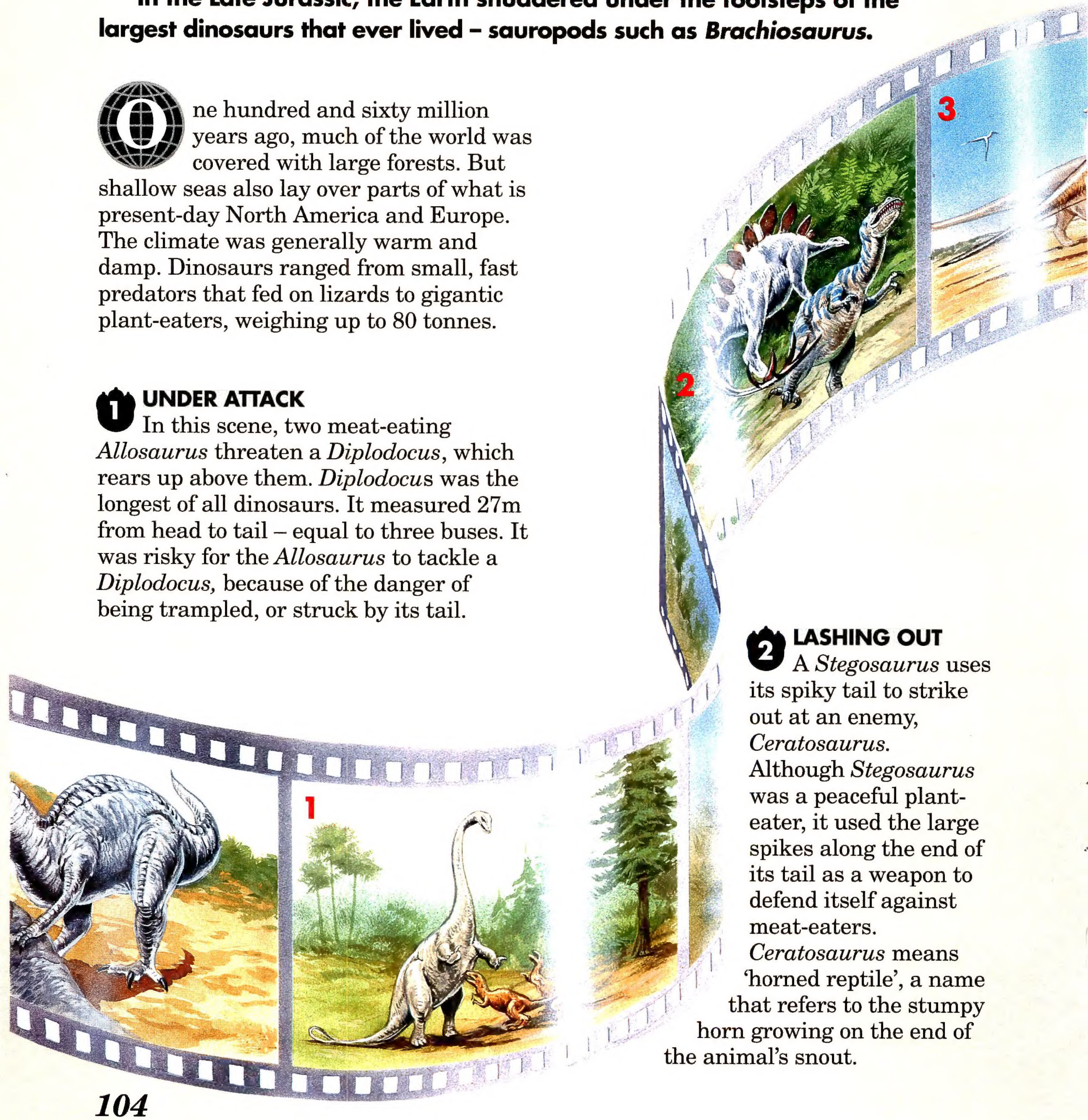
Age of the giants

In the Late Jurassic, the Earth shuddered under the footsteps of the largest dinosaurs that ever lived – sauropods such as *Brachiosaurus*.

One hundred and sixty million years ago, much of the world was covered with large forests. But shallow seas also lay over parts of what is present-day North America and Europe. The climate was generally warm and damp. Dinosaurs ranged from small, fast predators that fed on lizards to gigantic plant-eaters, weighing up to 80 tonnes.

1 UNDER ATTACK

In this scene, two meat-eating *Allosaurus* threaten a *Diplodocus*, which rears up above them. *Diplodocus* was the longest of all dinosaurs. It measured 27m from head to tail – equal to three buses. It was risky for the *Allosaurus* to tackle a *Diplodocus,* because of the danger of being trampled, or struck by its tail.

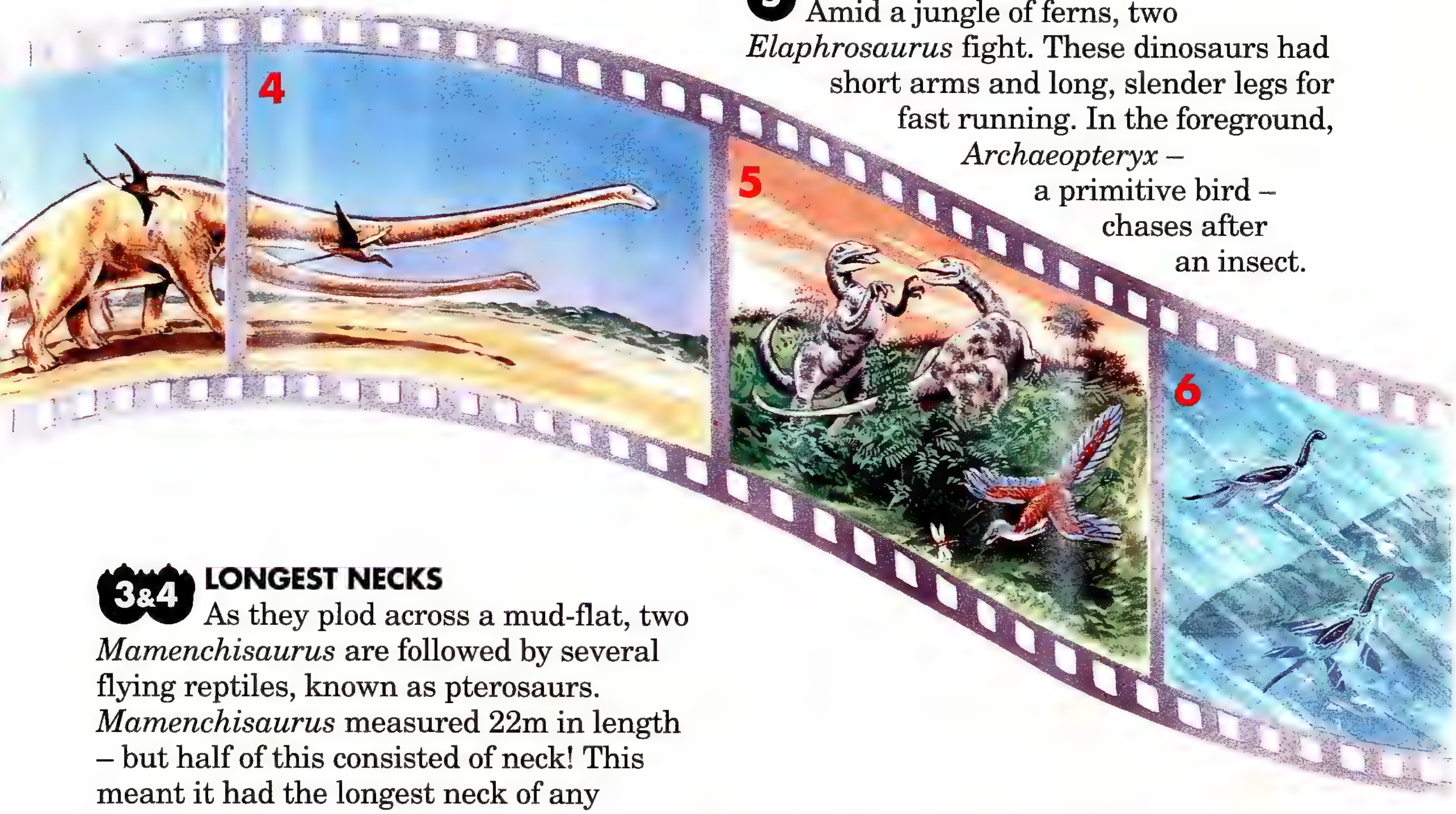


2 LASHING OUT

A *Stegosaurus* uses its spiky tail to strike out at an enemy, *Ceratosaurus.* Although *Stegosaurus* was a peaceful plant-eater, it used the large spikes along the end of its tail as a weapon to defend itself against meat-eaters. *Ceratosaurus* means 'horned reptile', a name that refers to the stumpy horn growing on the end of the animal's snout.

5 A DINOSAUR BATTLE

Amid a jungle of ferns, two *Elaphrosaurus* fight. These dinosaurs had short arms and long, slender legs for fast running. In the foreground, *Archaeopteryx* – a primitive bird – chases after an insect.



3&4 LONGEST NECKS

As they plod across a mud-flat, two *Mamenchisaurus* are followed by several flying reptiles, known as pterosaurs. *Mamenchisaurus* measured 22m in length – but half of this consisted of neck! This meant it had the longest neck of any animal that ever lived. The neck contained 19 vertebrae (bone segments) – more than any other dinosaur. *Mamenchisaurus* weighed about 30 tonnes, and so needed to eat a vast amount every day.

Is it true that birds are descended from dinosaurs?

Palaeontologists are still not certain that birds are descended from dinosaurs. But most think it is very likely. They have looked at an early bird called *Archaeopteryx*, which lived 150 million years ago. It had feathers like a modern bird, but also some very different features. These included teeth, for instance, and bones in its tail – which link it with the dinosaurs.

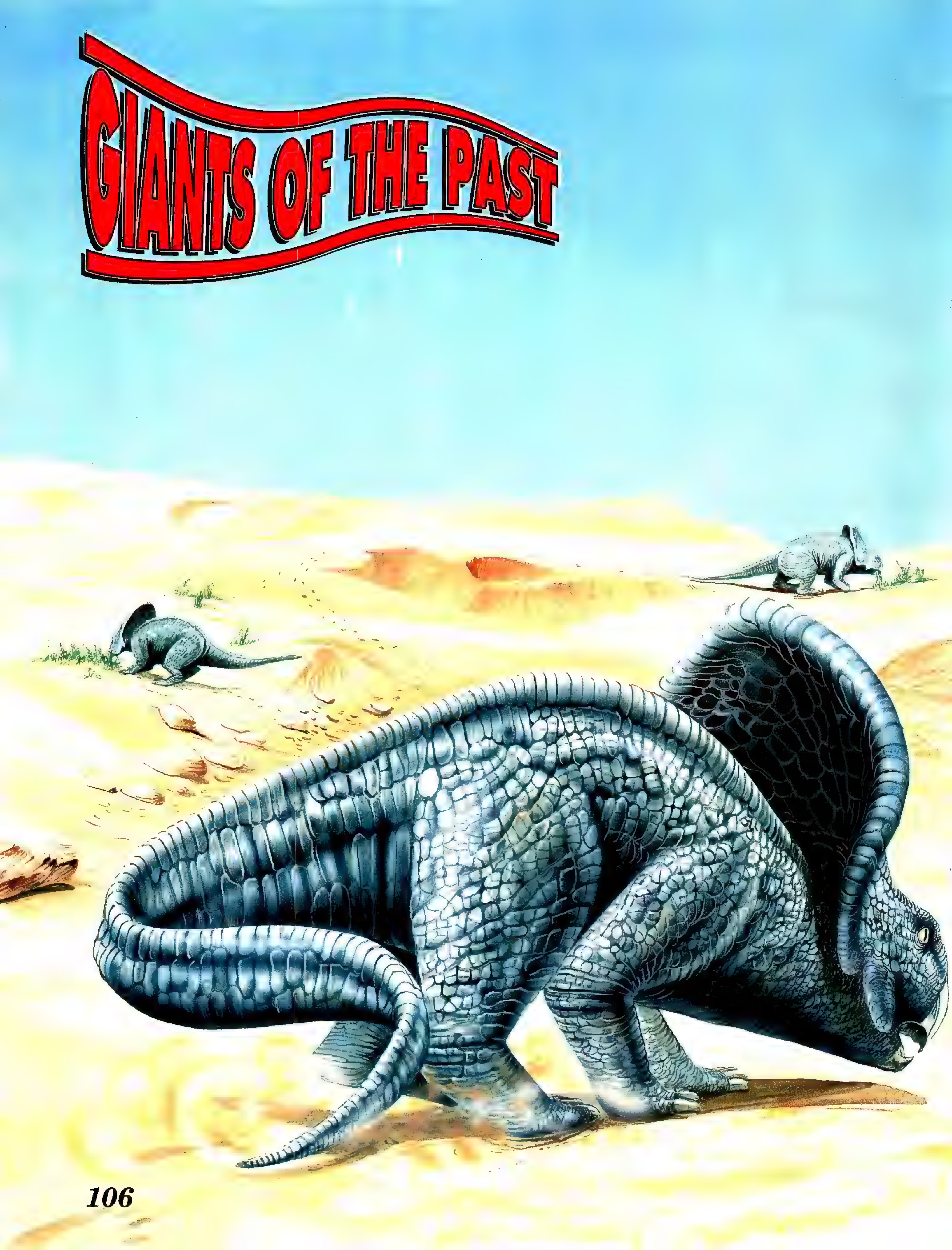
6 OCEAN CREATURES

In a Late Jurassic sea, two plesiosaurs, *Cryptocleidus,* swim side by side. These fish-eaters propelled themselves along in the water using their long, broad flippers, which were shaped like paddles. *Cryptocleidus* did not 'row' through the water though. It moved through the sea by flapping its front flippers like penguins do today and steered with its back fins.

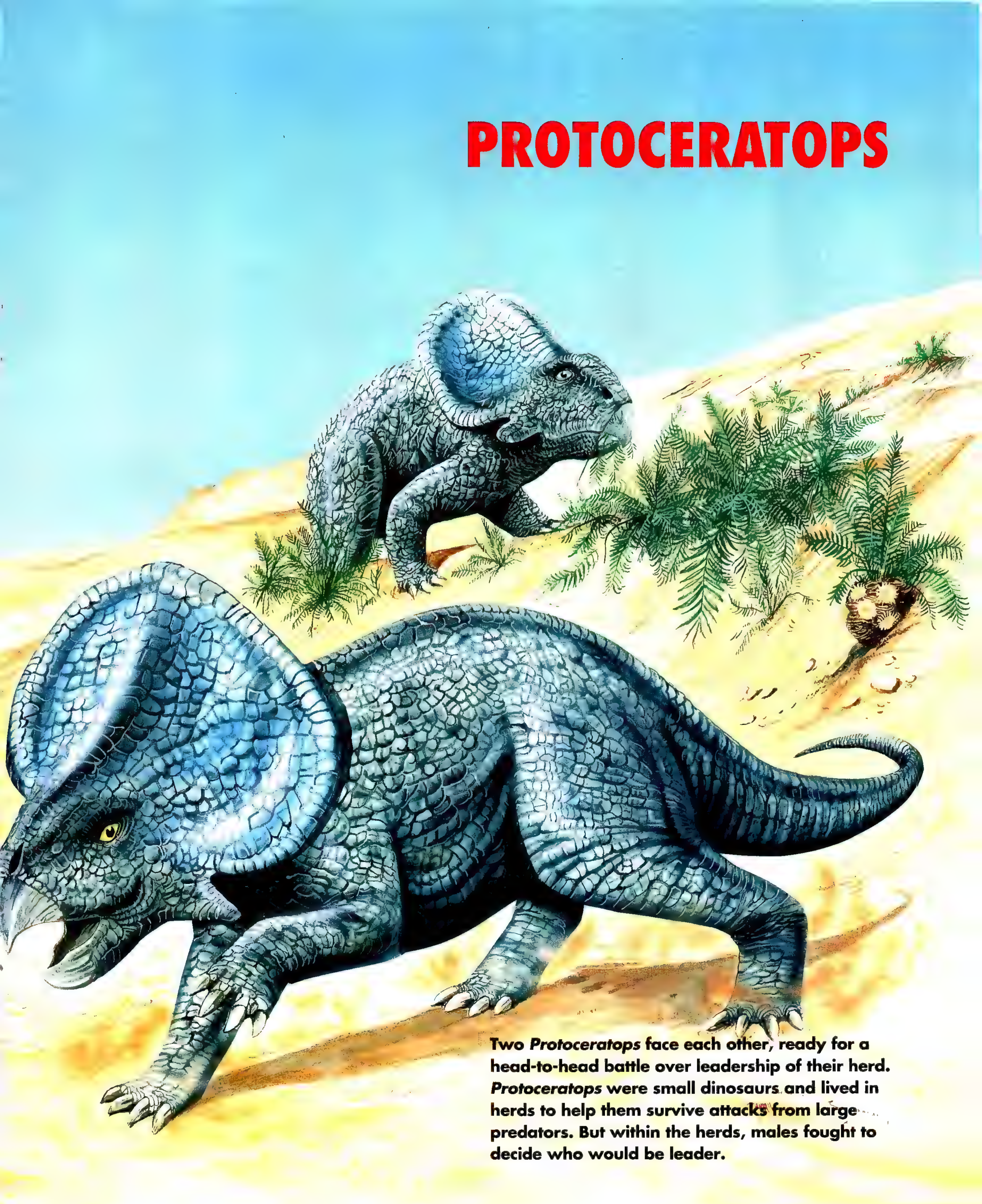
Below the *Cryptocleidus* is another sea reptile – a huge pliosaur, *Stretosaurus*. Pliosaurs had short necks and large heads; their relatives the plesiosaurs had long necks and small heads.

Both plesiosaurs and pliosaurs breathed air so they had to surface in order to fill their lungs.

GIANTS OF THE PAST



PROTOCERATOPS

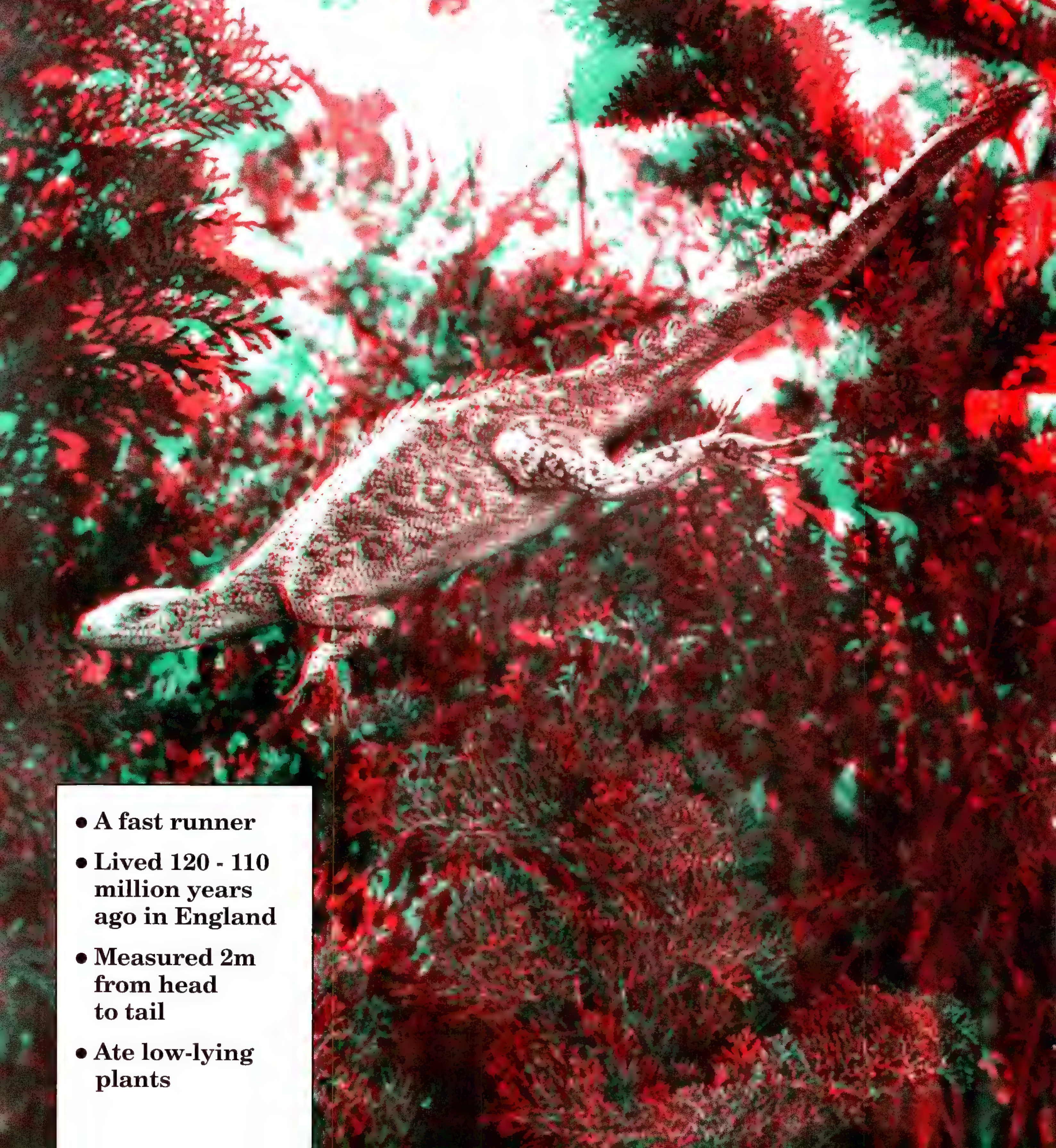


Two *Protoceratops* face each other, ready for a head-to-head battle over leadership of their herd. *Protoceratops* were small dinosaurs and lived in herds to help them survive attacks from large predators. But within the herds, males fought to decide who would be leader.

3-D Gallery

9

HYPSILOPHODON



- A fast runner
- Lived 120 - 110 million years ago in England
- Measured 2m from head to tail
- Ate low-lying plants

3-D Gallery 10

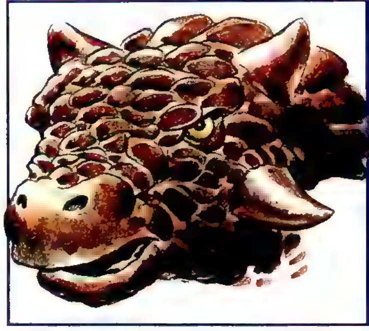
STYRACOSAURUS

- A horned dinosaur
- Lived 85 - 75 million years ago in North America
- Measured 5.5m from head to tail
- Ate plants

Dinosaur portraits

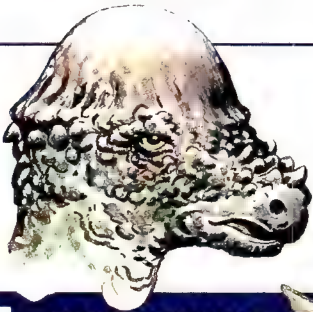
Study this gallery of dinosaur heads and discover how different their faces were in size and shape.

Some dinosaurs had huge, spined heads. Others were horned, duckbilled or had snouts like beaks.



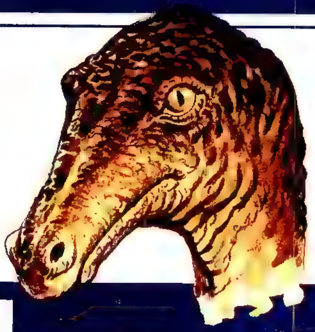
EUOPLOCEPHALUS

- Wedge-shaped, squat head
- Protected by spikes
- Short, wide mouth
- 40cm from tip of snout to back of bony neck



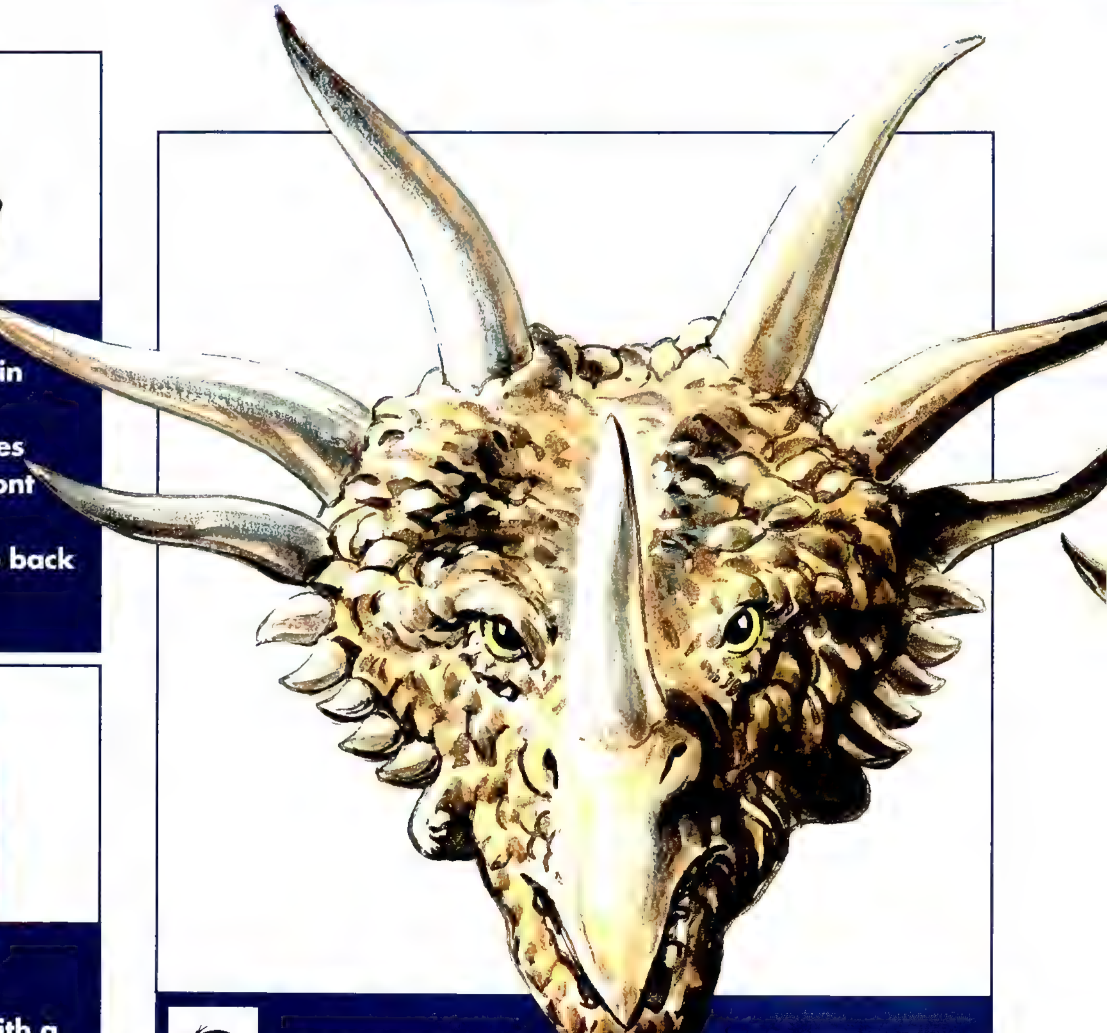
PRENOCEPHALE

- Domed head used in head-butting fights
- Large, forward-facing eyes
- Plant-eater with sharp front teeth for cutting food
- 26cm from tip of snout to back of head



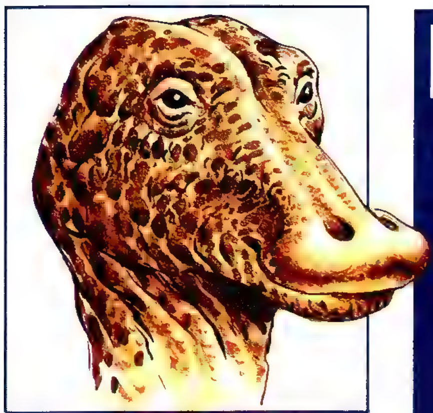
TROODON

- Carnivore (meat-eater) with a slight, slender jaw for snapping at its prey
- Large, forward-facing eyes
- Sharp cutting, stabbing teeth
- 24cm from tip of snout to back of head



STYRACOSAURUS

- Long skull with 6-spined frill for display and defence
- Tall horn over nose for stabbing at predators
- Parrot-like beak for slicing vegetation
- 2m from tip of snout to tip of longest spike



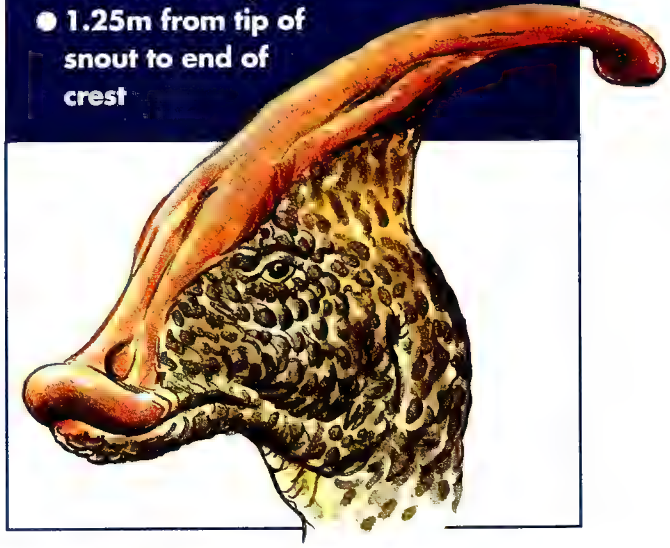
OURANOSAURUS
- No frills or crests
- Flattened beak, but not a true hadrosaur
- Large cheeks for holding in food while chewing
- 55cm from tip of snout to back of head

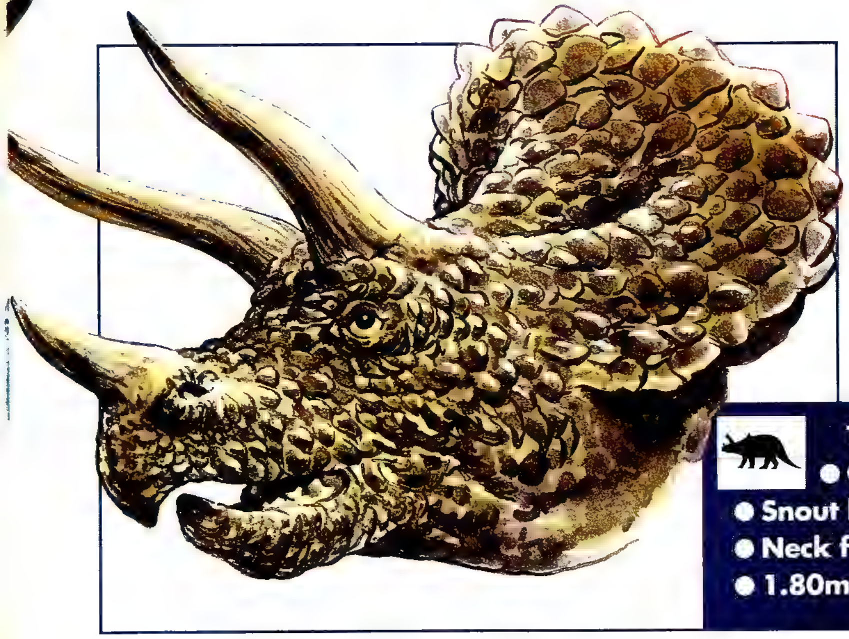
CORYTHOSAURUS
- Duckbilled dinosaur
- Crest on top of head for mating display
- Also used hollow crest for making calling sounds
- 55cm from tip of snout to back of head

What is? A HADROSAUR

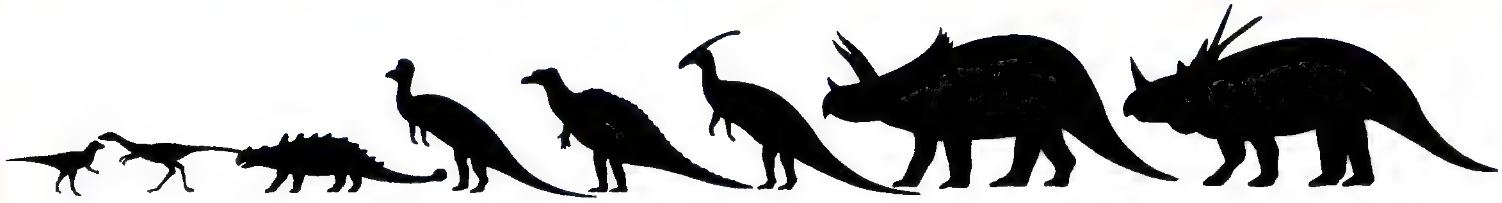
Hadrosaurs were broad-beaked dinosaurs that lived in the Late Cretaceous Period. These animals are also called 'duckbills', because their wide, toothless beaks looked like those of ducks. Unlike ducks, however, they had rows of teeth near the back of their mouths for grinding food. Hadrosaurs varied in size. Some were only about the height of a man, while others were about the height of a two-storey house.

PARASAUROLOPHUS
- Duckbilled dinosaur
- Long, hollow crest used for making loud calling sounds
- Large cheeks for holding in food while chewing
- 1.25m from tip of snout to end of crest





TRICERATOPS
- One horn on nose, and two above the eyes
- Snout like a parrot's beak for slicing up vegetation
- Neck frill surrounded by knobs of bone for protection
- 1.80m from tip of snout to back of frill



Match the head to the outline of the dinosaur.

Introducing the bird feet

Scientists divide dinosaurs into different groups. Each dinosaur in a group has something that makes it like the others. Grouping dinosaurs in this way can help scientists to study them more easily.

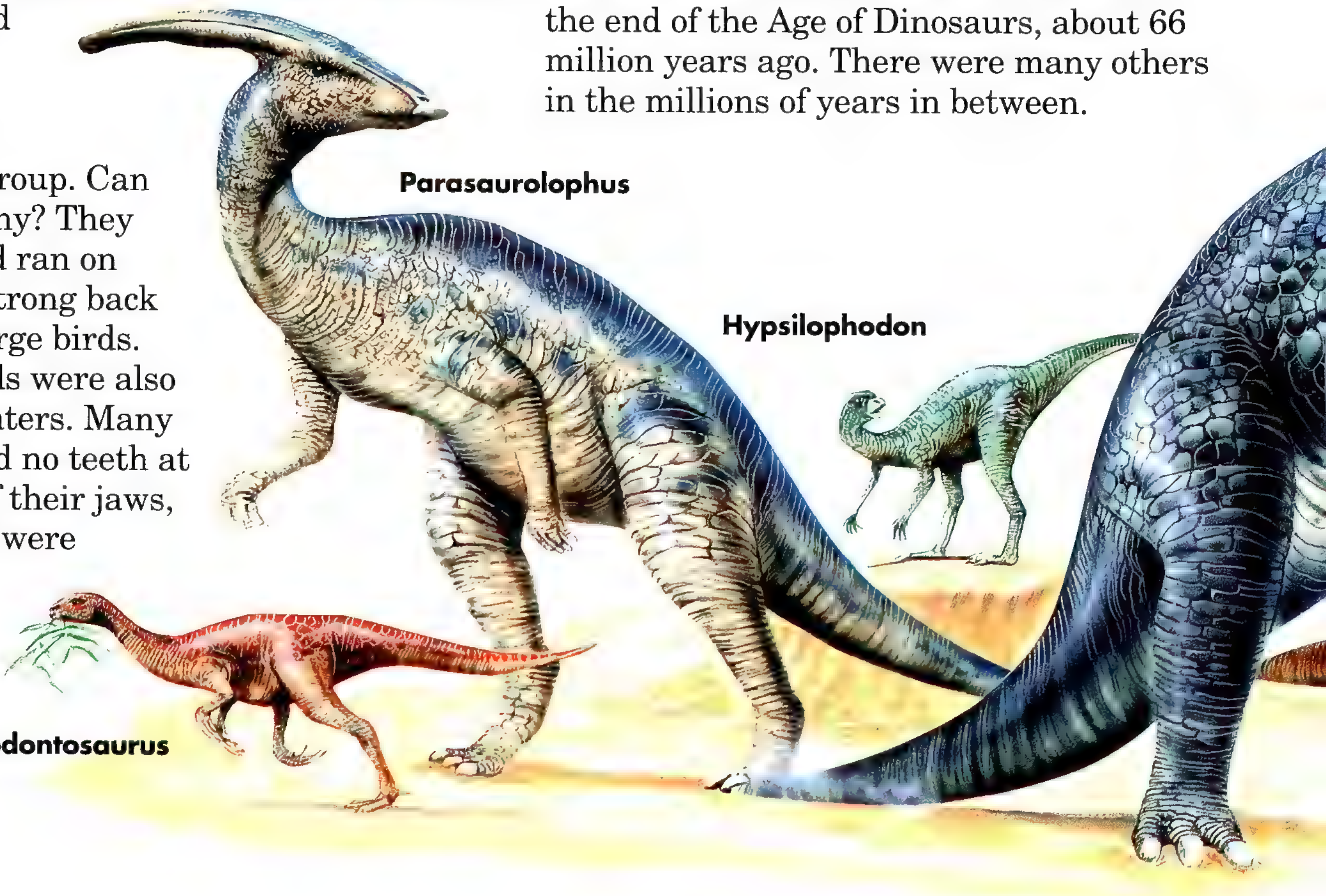
Some of the dinosaurs shown here were as small as dogs; others were the size of giraffes. They may look very different from each other, but they all have some things in common. They are all members of a group called the ornithopods.

BIRD FEET

Ornithopod means 'bird feet' and scientists have placed these dinosaurs together in the same group. Can you spot why? They walked and ran on their two strong back legs like large birds. Ornithopods were also all plant-eaters. Many of them had no teeth at the front of their jaws, their teeth were further back.

LIVING THROUGH THE AGES

The ornithopods did not all live at the same time but they were a very successful group. The Triassic, Jurassic and Cretaceous periods each had its own ornithopods. *Heterodontosaurus* (het-er-oh-dont-oh-saw-rus) lived at the beginning of the Age of Dinosaurs, about 220 million years ago. Others, such as *Anatosaurus* (an-at-oh-saw-rus), lived at the end of the Age of Dinosaurs, about 66 million years ago. There were many others in the millions of years in between.



BIG GROUP

There were between 60 and 70 different kinds of dinosaur in the ornithopod group. Some, such as *Parasaurolophus* (pa-ra-saw-oh-loaf-us), had curious crests, which curved back from their snouts. The crest had tubes inside it and was probably used to make loud bellowing noises.

WORLD WIDE

Ornithopods lived in many parts of the world. Skeletons have been dug up in North America, Asia, Europe and Africa. *Ouranosaurus* (oo-ran-oh-saw-rus) was discovered in North Africa. Like all ornithopods, it had strong back legs.

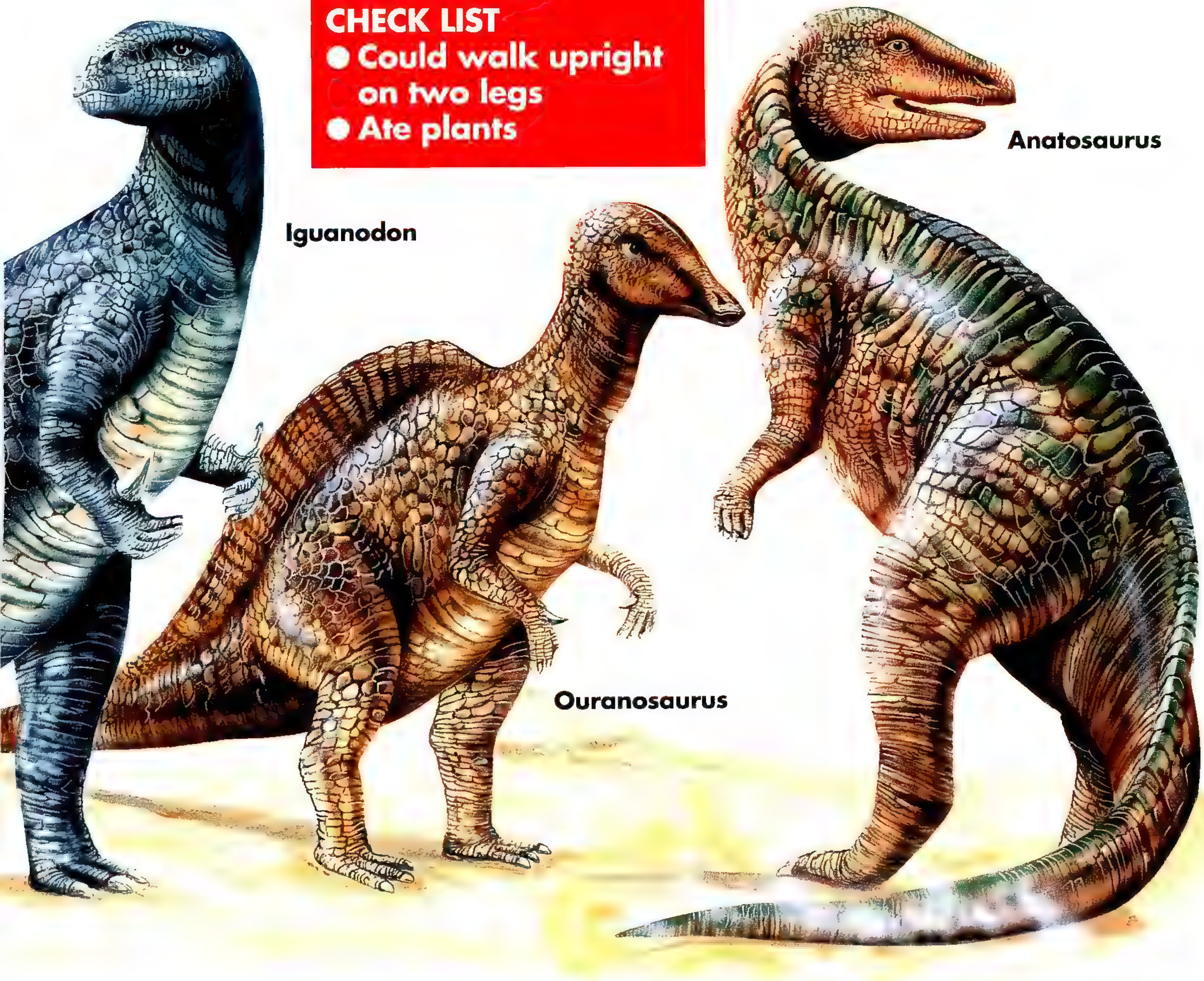
IT'S A FACT

CHANGING ORNITHOPODS

Ornithopods existed for millions of years, and over this time they evolved (changed). Most of the ornithopods that lived at the end of the Age of Dinosaurs were much bigger than those that lived at the beginning. By the end of the dinosaur age, ornithopods' mouths had also changed. Some, such as *Iguanodon* and *Hypsilophodon* (hip-see-loaf-oh-don), had horny beaks instead of front teeth.

ORNITHOPOD CHECK LIST

- Could walk upright on two legs
- Ate plants



Meet the horned eyes

Horns, frills and curved bony beaks are the clues to look for when you identify a dinosaur that belongs to the group called the ceratopians.

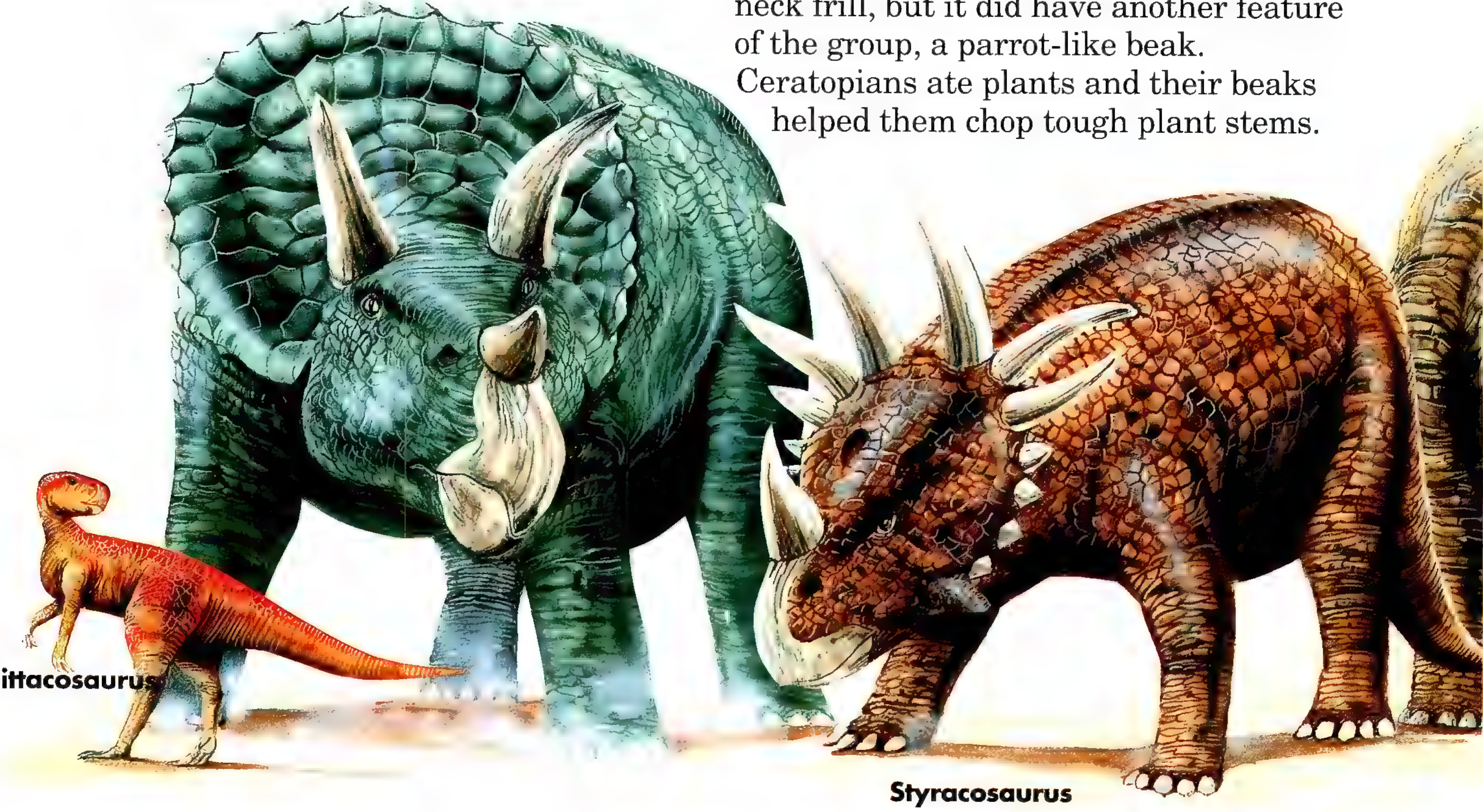
One of the best known of dinosaurs, *Triceratops*, belongs to the ceratopian group. Ceratopian means 'horned eye' and the magnificent horns that most of these dinosaurs had above their eyes gave the group its name. *Triceratops* was the largest of this group and its brow horns were up to one metre long.

LIFE-SAVING FRILLS

Most ceratopians had a huge neck frill. The frill was made of bone, covered with skin. It protected the dinosaur's neck from being bitten or clawed by meat-eaters. In some dinosaurs, such as huge *Torosaurus* (to-roh-saw-rus), the frill grew half way down the animal's back.

PARROT BEAKS

Psittacosaurus did not have an obvious neck frill, but it did have another feature of the group, a parrot-like beak. Ceratopians ate plants and their beaks helped them chop tough plant stems.



CHANGING FACES

The horned eyes included many different kinds of dinosaur. The group lived towards the end of the Age of Dinosaurs in the Cretaceous Period. Like the ornithopods, the ceratopians evolved (changed) during their time on Earth. Some of the first ceratopians, such as *Protoceratops*, did not have horns, instead they had thick, bony areas over their snouts and eyes. But in time, ceratopians developed horns. *Pentaceratops* (pent-a-ser-a-tops) was a later dinosaur than *Protoceratops*. It had the most horns of all the horned dinosaurs. Its name means 'five horned face'.

CERATOPIAN CHECK LIST

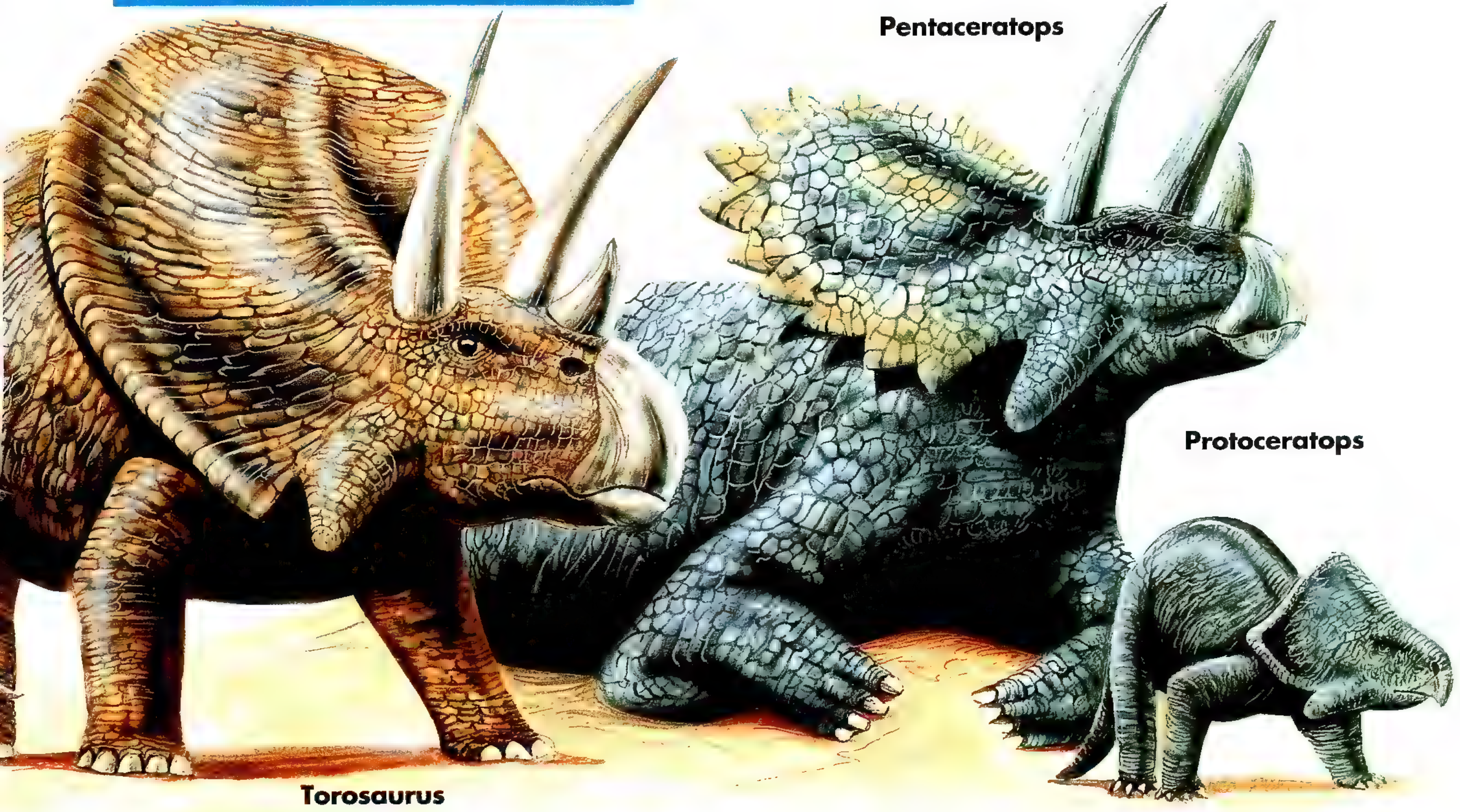
- Horns on face
- Neck frill
- Parrot-like beak
- Walked on four legs
- Ate plants

Is it true that some ceratopians had holes in their frills?

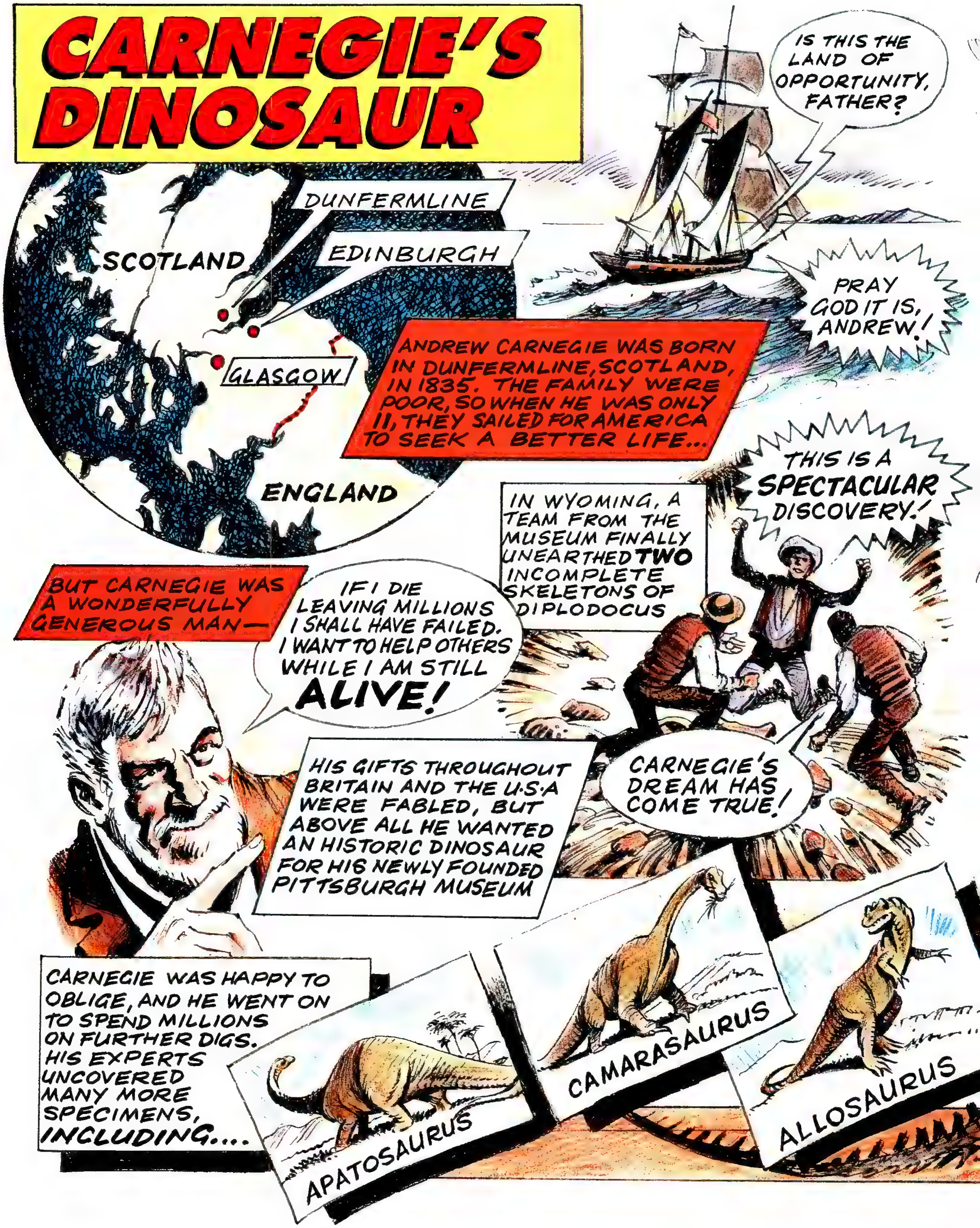
The neck frills of these animals were made of bone. Some of them were so large that they must have been extremely heavy. To make them lighter, some of them had large holes in them. The skin covering the frill stretched over the holes so that they could not be seen.

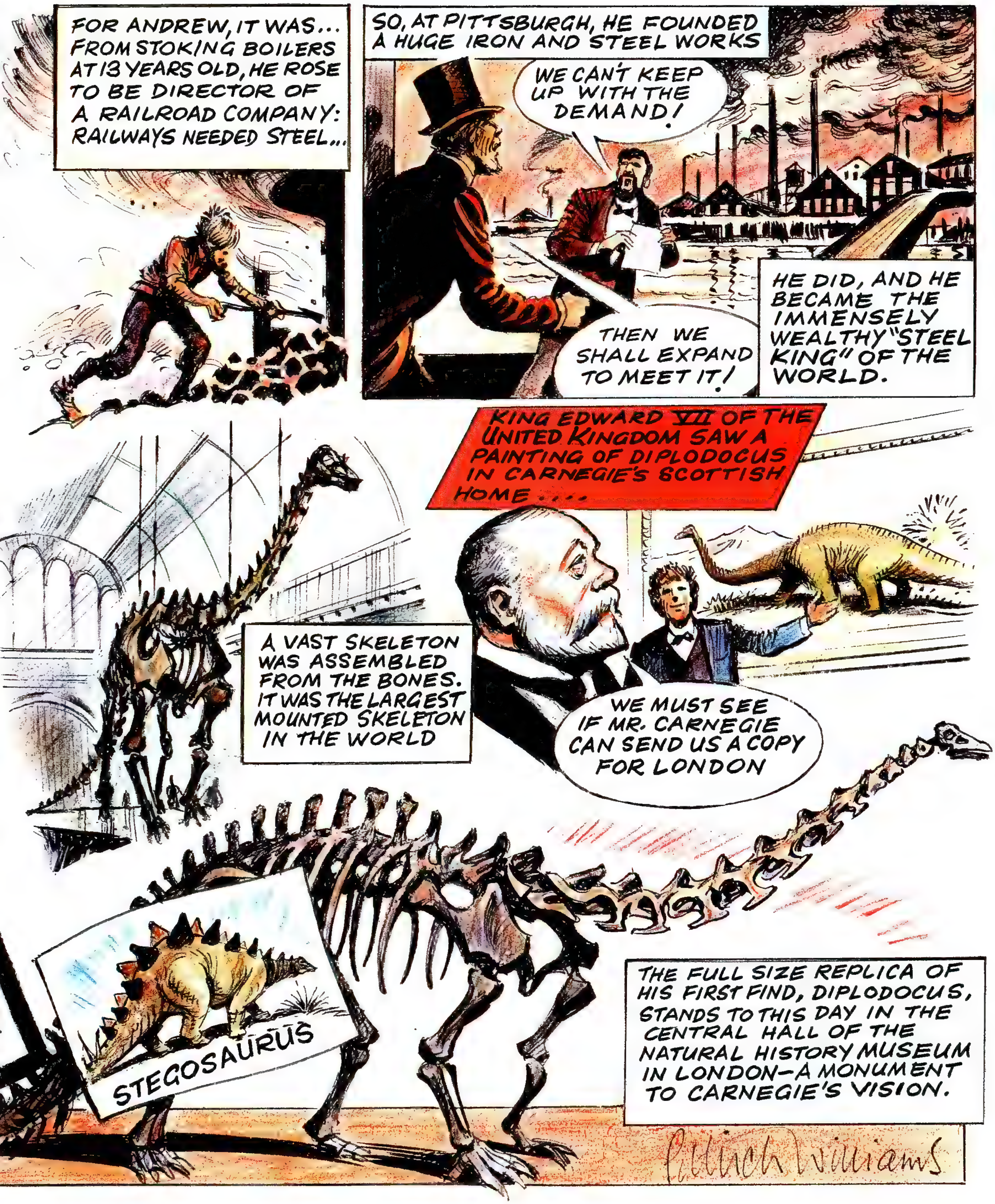
FOUR FOOTED

Like today's rhinoceroses, the ceratopians walked on all fours. *Styracosaurus* had strong, muscular legs to support its huge head. Its feet ended in toes which were spread out to help carry the weight of its large body. *Psittacosaurus* usually walked on two legs, but it walked on all fours sometimes. The ceratopians lived only in North America and Asia, which are the only places where their fossils have been found so far.



CARNEGIE'S DINOSAUR


SCOTLAND
DUNFERMLINE
EDINBURGH
GLASGOW
ENGLAND
IS THIS THE LAND OF OPPORTUNITY, FATHER?
PRAY GOD IT IS, ANDREW!
ANDREW CARNEGIE WAS BORN IN DUNFERMLINE, SCOTLAND, IN 1835. THE FAMILY WERE POOR, SO WHEN HE WAS ONLY 11, THEY SAILED FOR AMERICA TO SEEK A BETTER LIFE...
BUT CARNEGIE WAS A WONDERFULLY GENEROUS MAN—
IF I DIE LEAVING MILLIONS I SHALL HAVE FAILED. I WANT TO HELP OTHERS WHILE I AM STILL ALIVE!
HIS GIFTS THROUGHOUT BRITAIN AND THE U.S.A WERE FABLED, BUT ABOVE ALL HE WANTED AN HISTORIC DINOSAUR FOR HIS NEWLY FOUNDED PITTSBURGH MUSEUM
IN WYOMING, A TEAM FROM THE MUSEUM FINALLY UNEARTHED TWO INCOMPLETE SKELETONS OF DIPLODOCUS
THIS IS A SPECTACULAR DISCOVERY!
CARNEGIE'S DREAM HAS COME TRUE!
CARNEGIE WAS HAPPY TO OBLIGE, AND HE WENT ON TO SPEND MILLIONS ON FURTHER DIGS. HIS EXPERTS UNCOVERED MANY MORE SPECIMENS, INCLUDING...
APATOSAURUS
CAMARASAURUS
ALLOSAURUS


FOR ANDREW, IT WAS... FROM STOKING BOILERS AT 13 YEARS OLD, HE ROSE TO BE DIRECTOR OF A RAILROAD COMPANY: RAILWAYS NEEDED STEEL...
SO, AT PITTSBURGH, HE FOUNDED A HUGE IRON AND STEEL WORKS
WE CAN'T KEEP UP WITH THE DEMAND!
THEN WE SHALL EXPAND TO MEET IT!
HE DID, AND HE BECAME THE IMMENSELY WEALTHY "STEEL KING" OF THE WORLD.
KING EDWARD VII OF THE UNITED KINGDOM SAW A PAINTING OF DIPLODOCUS IN CARNEGIE'S SCOTTISH HOME....
A VAST SKELETON WAS ASSEMBLED FROM THE BONES. IT WAS THE LARGEST MOUNTED SKELETON IN THE WORLD
WE MUST SEE IF MR. CARNEGIE CAN SEND US A COPY FOR LONDON
STEGOSAURUS
THE FULL SIZE REPLICA OF HIS FIRST FIND, DIPLODOCUS, STANDS TO THIS DAY IN THE CENTRAL HALL OF THE NATURAL HISTORY MUSEUM IN LONDON—A MONUMENT TO CARNEGIE'S VISION.

Improve and test your knowledge with...

DINO Fact File

Climb down *Diplodocus'* neck answering the questions as you go.

3 When did the first true frogs appear?
a) during the Middle Jurassic
b) at the end of the Triassic
c) in the Early Jurassic

4 What does *Ceratosaurus* mean?
a) horned dinosaur
b) horned reptile
c) horned face

5 What was *Archaeopteryx?*
a) a flying dinosaur
b) a primitive bird
c) an ornithopod

6 What is a pliosaur?
a) a sea reptile
b) a land animal
c) a bird

7 What were hadrosaurs also known as?
a) plated dinosaurs
b) horned reptiles
c) duckbills

8 What does ornithopod mean?
a) parrot beak
b) bird feet
c) big eared

9 Where did ceratopians live?
a) Australia and Europe
b) North America and Asia
c) South America and Africa

10 What was Carnegie's dinosaur?
a) *Diplodocus*
b) *Ouranosaurus*
c) *Brachiosaurus*

Buried eggs

Protoceratops females laid their eggs in a circle and covered them with a layer of sand. They then laid a second lot of eggs over the first and covered this. Possibly, there were as many as four layers altogether.

Bigger bones

It is usually only larger dinosaurs that have been fossilized as whole skeletons. The bones of smaller dinosaurs decomposed more quickly, or were destroyed by predators.

Flower feeders

When flowering plants first appeared, about 100 million years ago, in the Cretaceous Period, dinosaurs began to enjoy them as food. They probably chewed up magnolia blossoms, for instance.

2 Why did *Saurolophus* inflate its face pouch?

a) to sing
b) to breathe
c) to warn of danger

1 Where were *Protoceratops'* eggs first found?

a) Manchester
b) Mongolia
c) Mexico

Large-eyed

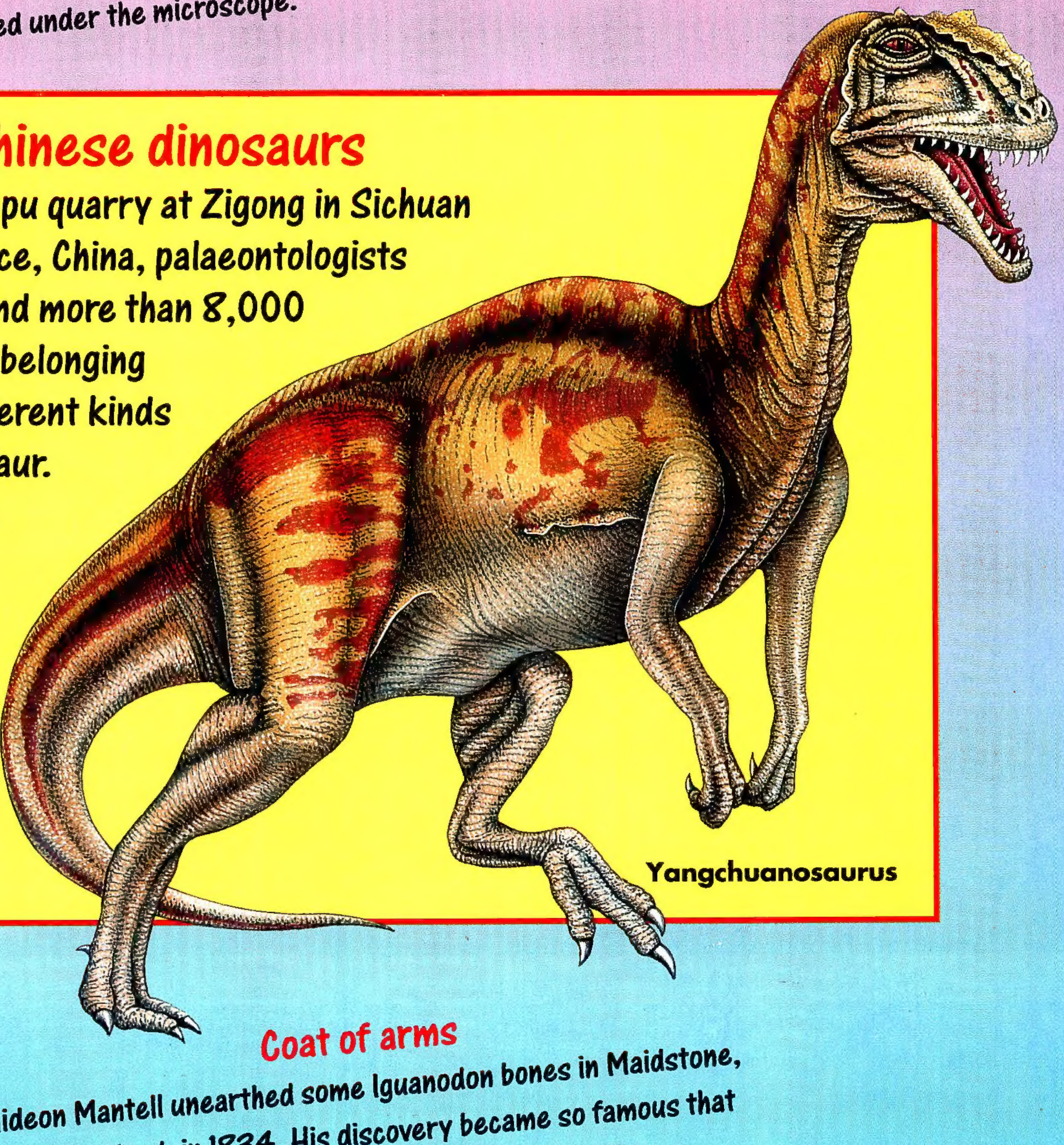
Most dinosaurs had very big eyes. Some experts believe this means they were active during the day and at night.

Sliced bones

Dinosaur bones that are too damaged to display are sometimes used to study the structure of bones. They are sliced up, then studied under the microscope.

Chinese dinosaurs

In Dashanpu quarry at Zigong in Sichuan Province, China, palaeontologists have found more than 8,000 bones belonging to many different kinds of dinosaur. There is now a dinosaur museum on the site.



Yangchuanosaurus

Coat of arms

Gideon Mantell unearthed some Iguanodon bones in Maidstone, Kent, England, in 1834. His discovery became so famous that Maidstone now uses an Iguanodon in its coat of arms.

Answers to the questions on inside back cover

AZENDOHSAURUS **230 MYA**

This dinosaur was named after the village of Azendoh, in Morocco, north Africa, where it was first found. *Azendohsaurus* (a-zen-doh-saw-rus) was only about 1.8m long and lived during the Late Triassic Period. It was lightly built, with a long tail and long back legs.

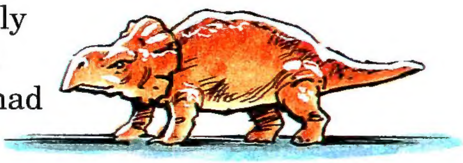
B

BACTROSAURUS **100 MYA**

Bactrosaurus (bac-tro-saw-rus) means 'reptile from Bactria', a region of Mongolia. *Bactrosaurus* was a duckbilled dinosaur. It grew up to 6m long and had rows of teeth in its cheeks for chewing and grinding the plants that it ate.

BAGACERATOPS **75 MYA**

Bagaceratops (bag-a-ser-a-tops) means 'small horned face'. It was only about 1m long. *Bagaceratops* had no teeth at the front of its mouth, but it had a very tough beak.

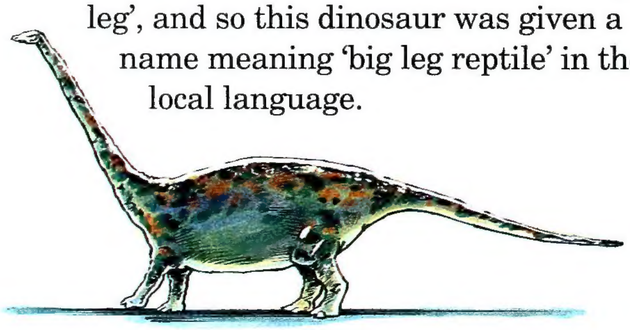


BAHARIASAURUS **100 MYA**

Remains of this meat-eating dinosaur have been found in Egypt in north Africa and Niger in west Africa. Its name means 'Bahariya lizard', after the place in Egypt where it was first discovered. *Bahariasaurus* (ba-har-ee-a-saw-rus) was about 8m long and was related to *T rex* and *Allosaurus*.

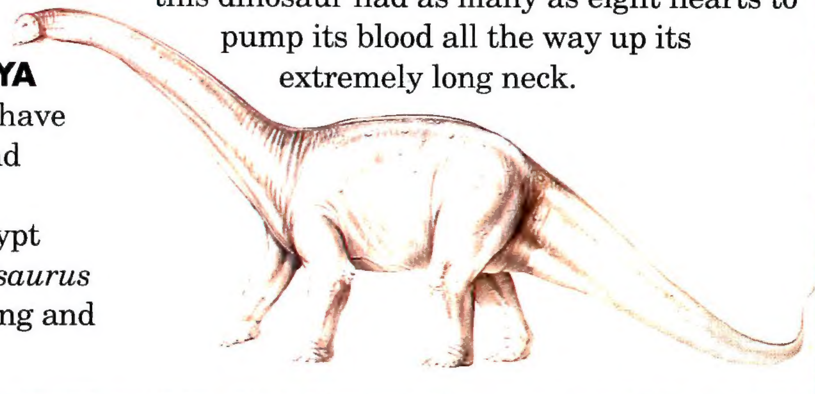
BARAPASAURUS **100 MYA**

Barapasaurus (ba-ra-pa-saw-rus) was a large sauropod, about 18m long. Its big bones were found spread across some fields in India. The truck driver who collected its bones to take them to a museum remarked on its 'big leg', and so this dinosaur was given a name meaning 'big leg reptile' in the local language.

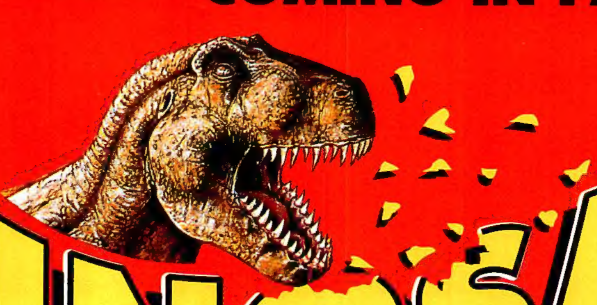


BAROSAURUS **150 MYA**

The famous American palaeontologist O. C. Marsh named this dinosaur in 1890. *Barosaurus* (bar-oh-saw-rus) means 'heavy reptile', and at 10 tonnes (twice the weight of an elephant) it is easy to understand why. This giant sauropod is a very similar dinosaur to *Diplodocus* and has been found in the USA and in Tanzania, east Africa. *Barosaurus* grew up to 27m long and used its long neck to reach tree tops to feed, like giraffes do today. Some scientists believe that this dinosaur had as many as eight hearts to pump its blood all the way up its extremely long neck.



COMING IN PART 6 OF



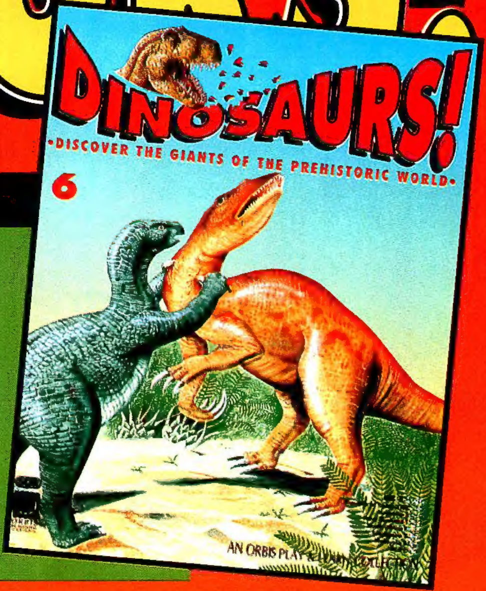
DINOSAURS!

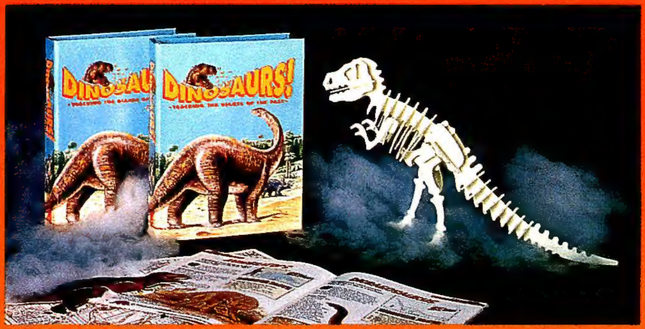
IDENTIKIT looks at three more great dinosaurs: *Iguanodon*, *Barosaurus* and *Gallimimus*. AND: Fearsome meat-eaters in TIME DETECTIVE.

PLUS

DINOSAUR MODEL: More pieces for your glow-in-the-dark *T rex* skeleton

And
SPOTTER'S GUIDE
HISTORY IN PICTURES
DINOSAUR WORLD


DINOSAURS!
•DISCOVER THE GIANTS OF THE PREHISTORIC WORLD•
6
AN ORBIS PLAY... COLLECTION



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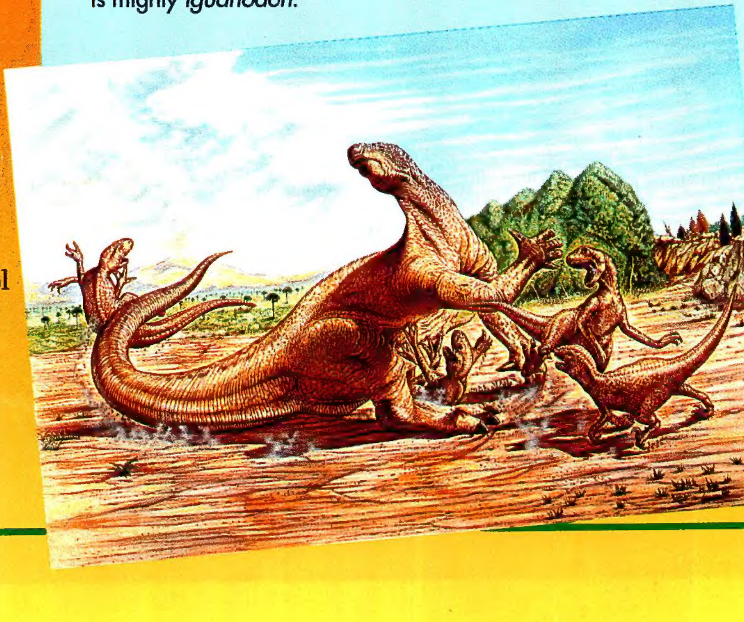
THE DINOSAURS! POSTER COLLECTION

Have you ever wanted to fill your room with dinosaurs? Now you have your chance – with the *Dinosaurs!* POSTER COLLECTION. Each poster is a 820 x 570mm (nearly eight times the size of this page) and features a superb dinosaur artwork. You'll find facts and figures about the dinosaur on the back – PLUS a look at some other prehistoric animals. The second poster is mighty *Iguanodon*.



ANSWERS TO DINO FACT FILE QUESTIONS: 1.b 2.c 3.a 4.b 5.b 6.a 7.c 8.b 9.b 10.a

Dr. David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT

How did dinosaurs use their claws?

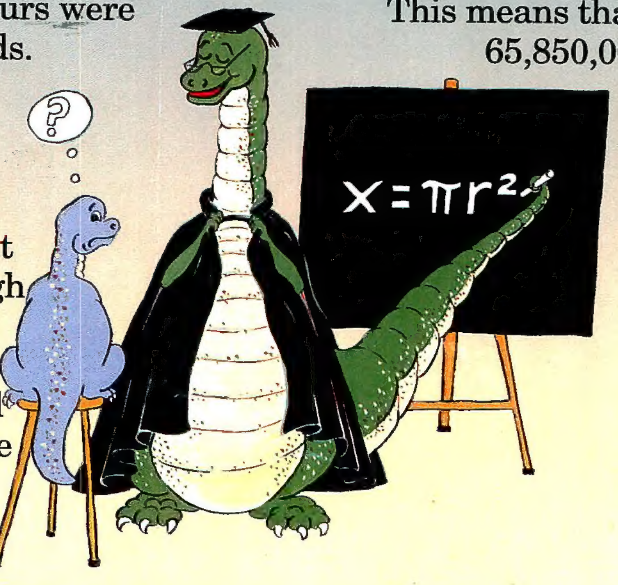
Dinosaur claws were used for a variety of purposes. Sharp, narrow claws were probably used for ripping at prey. Broad, flat claws were used as hooves for walking on. Other types of claws were more suitable for digging, scratching, or for defence against enemies.

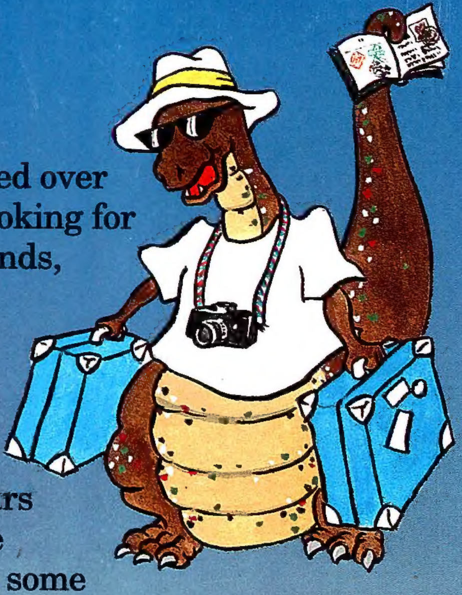
Did dinosaurs live in herds?

There is a lot of evidence that certain species of dinosaur lived in herds. Thousands of bones from one type of dinosaur have been found together. These bone piles were probably made when herds of dinosaurs were killed by sudden floods.

How clever were dinosaurs?

Dinosaurs were not at all stupid, even though many had small brains. Some were highly intelligent and had surprisingly large brains for reptiles.





Did dinosaurs migrate?

Dinosaurs migrated over huge distances, looking for new hunting grounds, fresh pastures or nesting sites. Scientists now know from fossils they have found that some dinosaurs also crossed whole continents. Today, some birds fly thousands of miles to migrate to warmer countries.

Did humans ever meet dinosaurs?

The last of the dinosaurs trod the Earth about 66 million years ago at the end of the Cretaceous Period. The first human beings that looked as we do today did not appear much before 150,000 years ago. This means that they missed dinosaurs by 65,850,000 years. So they could not possibly have seen a live dinosaur.

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